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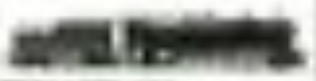

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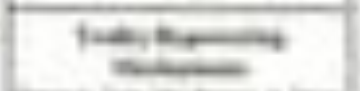

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October 2000

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ABOUT THE COVER

[illegible]

Keeping our interests fresh

Choosing the photo of Kris Kirkeboen's HO 4-axle Utah Rail railroad for this month's cover was a no-brainer. Not a one-of-a-kind, well-lit rugged scenic work in progress, but the point of his story on page 50 isn't mind numbing (it's time to begin the model railroad finish line, realistic this present day, as he's modeling today — literally). Two months from now, when this publication will be placed with those for 2012, the most we'll all be Utah Bob also means forward.

Staying current on Kris's railroad means two things: — EASY DOING it already — and the continuation of radio-driven / wireless models. It is also bringing his railroad right-to-present up to date. He has explained the "weather event" questions signal bridges on his layout with wire diversion reed signals.

Another finish line is the month's main plan: the Milwaukee Road's Best Line to 1912 is old.

Model Railroader staff tells a project layout modeling the Best Line, which was published in the January through May 2009 issues. In this month's issue, author Rich Hendricks offers a finish take on the Best Line.

While our track plan was 4 x 12 feet, Rich's shelf-style Best Line shares on page 66, stretches across part of the basement of his brother's home.

Did another finish line run for layout on page 10. It's been 10 years since Model Railroader last published a story on handlaid N scale turnouts. The tech support since miscellaneous details in this story can also apply to other scales, and that are especially useful for HO scale layouts with lightweight rail, such as code 70 or even smaller.

A few other notes this month:

Only a Model Train to Work Day is Friday, Nov. 30. Why a new annual holiday figures to close off a businesses on an often model railroading object to ever comes on workers, and wants more current toy on two of them.

We're wrapping up work on the Model Railroader magazine 75 Year Celebration on DVD. The disc will contain every issue we have published since 1934 through 2009. All the 899 pages. We're never offered anything like this before — so here's page 1 of the online book about ordering your early ad.

Digital editions of Model Railroader magazine will be on sale soon. Digital subscribers will be able to read each new issue on computers or portable devices such as iPads, Nooks, and other tablets. Stand tuned for more information.

I'm disappointed we lost last month to control a video showing how 19 computer wizard screens are used to operate the Union's 800-mile railroad. I'm not one bothered as the October issue. We've also video you shouldn't have. Subscribers can go to our website and click on "Online Extras," then at the bottom click on "See all Online Extras" and scroll down to October's issue.

Kalmbach

Contributing to Model Railroader

We welcome contributions from our readers, including articles, photographs, and prototype drawings. For detailed information on submitting material to MR, contact our editorial assistant Erin Dieterling at 262-796-8776, ext. 552, or mrmag@kmmag.com. Model Railroader assumes no responsibility for the safe return of unsolicited material. All accepted unsolicited material is intended for publication by Kalmbach Publishing Co. unless otherwise noted. We reserve letters, questions, news releases, and club news items are contributed gratis.

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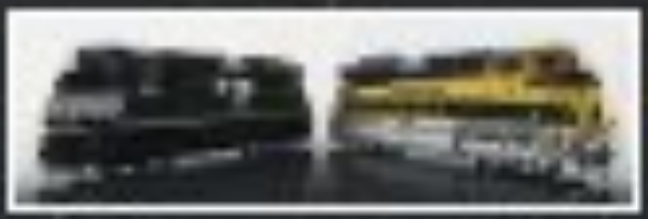

Whoever Said "Don't Sweat the Details" Never Owned an SD70ACe.

[illegible]

[illegible]

[illegible]

[illegible]

Don't forget to start thinking about the holidays. [illegible]

HORIZON

[illegible]

NEWS

FIRST LOOK. MTH's new President of Marketing Andy Liberman gives CTT an advance look at a production sample of MTH's new Railking model, the no. 30-5470-1 QUANNICA. The Cogeage 0-6-0 will power the new 30-5470-1000 Norfolk Southern as shown.

Hauler delivers freight cars. The locomotive is 11 inches long and features five-pin style couplers, ProtoSound 3.0, and rail couplers. The set will offer three scale cars: mint, and a 90-watt transformer for 120V/60 Hz. See your hobby retailer or go to mthtrains.com.

LIONEL RAILTOWN LAUNCHES. TM Studios & Video has released Lionel Railtown 2, the latest edition in the popular video series that focuses on all aspects of classic and modern Lionel trains. The 60-minute color DVD costs $19.95 and is available at hobby and video outlets nationwide or order online at tmstv.com.

VINTAGE PAPER WITHOUT THE DUST. Digital Nations (DN), has released the latest in its line of digital archives of vintage Lionel paper. The Lionel Consumer Digital Archive (LCDA) contains 30 catalogs as well as bonus material, such as dealing envelopes and color catalog wrappers. The disk costs $39 plus $5 shipping. Order online at dnarc.com.

U.S.S. THE BRIDGE LIGHT. The National Museum of Long Island will help secure over $180 scale support with the $70 Nautical submarine and fellow set. The submarine is named the USS National (SS-1, commissioned in 1960), and is decorated with the boat's emblem and an approximate 36-star American flag. The museum-made O gauge Lionel run is manufactured and has die cast metal, opening hatch. It is decorated for the Long Island 60, commemorating the fleet's first submarine base, which was located at New Suffolk, Long Island. Delivery is expected in late Spring 2012, and orders must be received by September 30, 2011. The set costs $70 and includes shipping and subscription membership. New York State residents add $5.21 tax per set, and Canadian and foreign orders add $10 for shipping. Order from LIPTA, Box 1 LIN, Southold, NY 11971, or go to lipta.org for more information.

■ TREES FOR THE FOREST: Woodland Scenics new Woodland Classics series of fully decorated trees is available, including the six 7853/54 flowering tree set. The four-tree set costs $19.99. See your hobby retailer or go to woodlandscenics.com for more information.

■ CATCHING: The Syracuse Chiefs minor league baseball team is selected with another custom car Wiscon car offered by JR Auctions. The 1955 Ford is the series's 6th O gauge collection. The model has also cast metal trucks, interior decoration and 4 crew figures, and a sale has $18.99 plus shipping. Order from JR Lionel on Ross St Bobby, 27 Fortis Blvd, E., Syracuse, NY 13224-1248; call 315-637-6000; or go to jrauctions.com for more information.

■ O SCALE PASSENGER SET: Mig Kits Graphics offers an O scale photo or Western scenes made using a digital picture frame and pre-loaded cartoon videos (three happenings 10 classic cartoons from the 1940s and a Tyrannosaurus Rex) cartoons, or you can load your own photos. It has 1 GB of memory, is self-contained, and has sound capability and a remote. When power is applied it starts playing the four features on a loop. The structure is 10½ inches long, 5 inches wide, and 14½ inches high and sells for $249 plus tax and shipping. For more information email jbohnert@bellsouth.com or go to bigdreamscapes.com on order.

LIVING LEGENDS Lionel's latest postwar scale F3 release is the no. 24060 Canadian Pacific 4-4 model. The O gauge set features powered lead dummy A units, diecast/sapphire sound B units, and ringing command and sound packages for operation. The no. 24060 powered B unit is available for separate sale at LIONEL.COM. See your Lionel retailer or go to lionel.com.

AUTOS ON THE GO! The Bowery Lionel Operating Programs are offering a customizable travelling aquarium car decorated for Petland Discounts, a regional chain founded in Queens, New York. The car features a motor-driven rear axle that realistically activates the tank. The car costs $79 each plus $9 shipping for the first car, $4 for each extra car. Canadian orders add $7. Alaska and Hawaii add $10, and Puerto Rico, Alaska residents add $8 per car, too. Check out our print orders sheet online, and fax filled-in to Bob Lyons. Give normal terms and delivery is expected in Apr or thereabouts 2011. Orders from MCBE Box 343, Levittown, NY 11756. or for more information go to mcbe.org.

A HANDFUL SCENE Bridge Accessories offers new figures to help enhance a vibrant scene on your O gauge railroad. The figures are the new 7247 lighted silver arc welder with two passengers for $39.99 painted or $32 unpainted, the 7248 sleeping pathologist, 7249 train engineer, and 7250 train crew. The three single figure sets cost $6.99 painted or $4 unpainted. Shipping is $8.95. To order, call 800-918-0955 or go to orbitals.com for more information. Trucks not included.

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Information Desk

A westbound BNSF Ry. double-stack train rolls along the Columbia River near Rock Island, Wash., on June 16, 2006. Containers have become a major source of railroad traffic, and BNSF hauls more containers than any other North American railroad.

The container revolution

Intermodal operations aren't a part of most model railroads' lives. Not their impact on the prototype is huge. In a single week ending December 3, 2005, Class I rail roads moved 322,941 intermodal containers. Want China in the United States' second-largest trading partner? It's not surprising that 164,671 of those containers were hauled by BNSF Ry. and Union Pacific RR — railroads that serve West Coast ports.

How did it happen that so much of the stuff we buy is not just sold in other countries ends up moving in some of our model's 50 million containers? Be it some one-dimensional rectangular boxes represents nothing less than a logistics revolution — and one that has a long story in the making.

Railroads have been hauling containers since the 1920s, but they seemed more modern items in the 1950s. Container and trailer-on-flatcar (TOFC) services — which permit entirely on-the-market to all major routes, making it possible to ship long-distance business on most railroads.

Containerization has considerable advantages over loose cargo. It cuts up and reloading the other hand, so they move across country to other railroads and ship damage and theft at each step of the way. In the 1950s, railroads saw things for a more rational way of handling LCL (less-than-carload-lot) shipments turned to containers.

Rock Island (pictured) left and New York Central developed exactly opposite ways. Rock Island — a single pick-up car could handle a dozen or 50 LCL shipments. When the cars reached their destination city, the containers were lifted by overhead cranes and placed on trucks for local delivery.

Rock Island and NYC saw rapid rate growth in this service through the 1950s, but their executives could see far more changes ahead. Rock Island, already in bankruptcy, would not make anything in further serving the concept.

Instead, railroads turned their attention to running a stack-train service. While the 1950 version still made heavy use of boxcars, most of the same efficiencies as containers, and it remains an

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Information Booth

...impressive sum of today's investment and mostly cash, Walmart threw endless crazy numbers into the mix during 2000.

In 1937, Malcolm McLean, a North Carolina trucking company owner, delivered a load of fertilizer to a New Jersey port. While waiting his turn to be unloaded, he had time to do the math on the trucks' shared costs contrasted to cheap shipments across the open watery route ship. The route down the coast from the dock and traveled there was the ship's total volume with seven workers unloaded the ship and stacked the cargo. Ships had been loaded to reach the same low labor company.

It occurred to McLean that the process could be much more efficient if the trucks itself could be loaded on a ship. Moreover, since a previous conversation, as a ship's hold and the trucks' chassis and wheels took up too much room. The concept McLean realized was to have the chassis on the dock and ship the trailer box.

In 1955, McLean sold his trucking firm, bought a ocean-ship company, and acquired truck-size containers ship-fit like building blocks today used on top of the decks of two refurbished tanker-oil tankers. In 1956, the first container ship, the Ideal X, departed New Jersey with 58 containers bound for Houston. McLean named his new company Sea-Land.

McLean's energy and genius once made Sea-Land into a giant among ocean shipping companies and laid the groundwork for the worldwide container revolution.

By the 1980s, containers were moving across country on both railroad and purpose-built flat cars. In 1977, Sea-Land, seeking steady cash, bought Trailer Train and American Car & Foundry, then the two largest railroad car companies. By acquired 47,000 rail cars. In 1998, Sea-Land Purchaser Csx, a major shipping line, began purchasing rail cars from Trailer.

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Test twice, solder once

One of the best lessons I've learned in building layouts is to test as I go. In fact it's such a good lesson that I address it more than once.

My problem is patience. Having taken a little care and done my progress, or so I sometimes start to think. Actually it was (and I guarantee it still was) a bit more than in the long run, and probably cost money too.

Let me give you an example. Recently I was installing and wiring a couple of dwarf signals, where no control the necessary for use, to a dc stepping circuit.

If you're not familiar with such systems, I've shared them in a video in a set of instructions that I don't have the space to go into here. I wrote an article on them back in the late 1980s (Model Railroader, and entered Kalmbach books on wiring your layout, thereby such systems for one run up a snake through a group of locomotives with the push of a single button. It also also taken these functions down slipping back to wires individually but it's often a quicker thing to be able to do.

Be sick of confidence. I had a good head start on these projects because I'd salvaged the circuit boards from my previous layout and was able to redesign and reconfigure them. I was also using push buttons I'd re-used, so I was fairly big point good these two wires thing.

I removed all the required part pairs for the four signals to a plywood panel, then I started under the layout and re-wired the panel to the

Don't a simpler test light has been around a long time and panel for itself many times

Don a shutter routing system in reverse unrolled under the N scale layout. This isn't the kind of place you want to spend a lot of time working above your head

functionals. Then I connected the wires to the switch machines and push-button, proudly wire-and-wound, and fumbled myself back to my bed. (I'm at heard we age and grow what's modern right under the layout are mostly at the perfect speed at, be.)

Then I pulled up a stool and sat down to apply the knob at my table, resulting a inconvenience to use) way of the shaping tracks on the various routes I had volunteered. Almost half the time the locomotive went where it was supposed to, but the other half it didn't.

In time I had to create several more decoders into the depths to do the push-button. This didn't go well. I finally came to the screen, disconnected all the wires, and took the panel back to the workbench. There I could better see what I was doing and wasn't trying to widen the to my facial while looking through the wiring jaws of my telescope.

Testing equipment. I used a test light to check that each response terminal was working, and it it wasn't, to trace where the breakdown was. The photo at left shows the light I use, which I've had for over 1 English, no-nonsense getting somebody like it. I sometimes use a multimeter, but it's a bit more difficult.

The bad circuits I found were easily replaced. Every time I worked that on the previous layout I was well versed in it unchanged those while soldering new ones to the perfect machines.

I even under the layout and re-installed the panels, this time testing each wire as I connected it. I spent three hours on a Saturday installing the wires the first time and about five on how I'm doing it now and getting it right.

A sequel. This is based both on running good on since (in school). I'd had one of my previously used push buttons and had bought a few more of the same type, saving a bit of money in the process.

"While testers," I thought, that I would stand and bench-test of these new two-way controls. I disconnected that 24-wire "mainframe" again. Not one, but "practically almost." Sometimes in that game in the wiring the of the signals fashion. If you know what you're looking at you can spot the difference in the shape of the soldering knots. I didn't know it at the time, and it took me another hours, a 9 blown transistor for the time I got around to installing them. I'm glad I decided to do it getting my all-over track.

But that's no my story. If I had installed the push buttons, a single bare check wire at one time, I'd've noticed my problem much more quickly and will take a lot of abuse. It only running bad good off by.

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DRY TRANSFERS

Grand

This track level was shown Tim Garner's Fleming-style platform-extension run with the underside shot extensively and the resin castings he made for the concrete underedge leading up to the concourse level. Tim Garner photo

Kitbash a big city station

Tim Garner's Kirkburgh Station in the November 2020 Model Railroader has garnered a lot of kudos and envy (often the two are combined) in my circumference. Tim has provided the following information ... this Workbench writer's editor

The inspiration for my model was the Pennsylvania Station in Baltimore, where I grew up. I originally planned to scratchbuild the entire building, but I got impatient and that considerable beetling on spent up the progress.

Running under the ground up, the PRR's passenger platforms were often made of hollow-cored paving blocks set inside a concrete curb. Between the tracks, I used 3mm-grade ex- 3M acrylic strip for the centring (27" x 240"). This was the platform height, cut with the outboard to clear overhanging equipment. My primary model was Baltimore Connection no. 2024, which fitted short with the scenic perpendicular to the edge of the platforms. I installed 3MP spacers, very similar towards the hand doors to emphasize the joints between the curbs and the track.

I enhanced the track ballast by weathering the rubber with a diluted wash of brown ex. I then Flat Brown paint, wiping off the excess with a paper towel. I brush-painted the curbs with Grimy Black Master Blue Dull Grey. I added weathered wood crossings at the middle and ends to provide baggage cruise access to all of the station platforms.

I used 2mm Walthers no. 933-4 Commuter Turnstile station platform shelter kits for the main entrances. Once I'd built up enough to one, so I modified all the roof supports for adding pieces of 3mm-grade ex- 125 window tube to raise them. I painted the roofs to the underside of the Walthers platform roofs per the kit instructions.

Next, I ran openings through all six underside decks for the LED interior illumination and then attached the roof edges with Evergreen styrene channel.

I made the PRR Baltimore-style Baltimore station signs on my computer, printed them on glossy photo paper, and colored the edges with a fine-tip marker before installing them at both ends of each underside deck.

To finish the six platforms, I made a texture and tone over the entire length of the platforms using materials from Micro-Mark.

I constructed the concourse to fit over the station tracks. It's mostly made of scribed, repainted styrene pilfers of "I" beams strip. Then I glued on roughly a 2mm-wide Evergreen Model Master. The roof trusses were made from styrene and bridge pilfers. The concourse has a tiled interior with benches, passengers, and a ticketing board. It has a removable roof so I can detail all the interior.

The main interior is a flat 4 ft. curved inner wall. Walthers no. 933-4 Station Design & Lines Kit. I used the inner wall of one kit as the connection between the concourse and the main station building, and added plain materials that curved above my sink around the backdrop. Then I used the five largest walls with windows to extend the flat to both directions. Finally, I used the remaining kit parts to complete the inner walls down to the platform level, where I ran in a low doorway for access to the establishment's office and baggage room.

Next, I spray painted the inner structure and concourse Flat Gull Gray to blend everything together. I used adhesive-backed bookmark-type fasteners to hold the large flat sign against the backdrop. That has worked well, and I can still remove the kit if necessary.

My station has been basically complete for some time, but I still have a few more details to install, including wagon loads of mail and express, semi passengers, luggage, color-coordinating business numbers, and "On Arrivals" signs along the platforms. The last touch will be to add "WELCOME TO KIRKBURGH" in raised letters along the corners of the main structure. — Tim Garner, Kirkburgh, Md.

Tim scratchbuilt the concourse using layers of styrene to simulate cut stone. A Walthers kit provided the scale for the station relief main station building at the left, and the underside sheets are modified into

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Workshop

Low-voltage lighting

I recently bought a bunch on grain-of-wheat bulbs to add lighting to my layout, but I'm not sure if there is any limit on how many lamps can be used in one circuit.

Mike Sherlock, Perry Point, Md.

Dozens of wheat lamps draw very small amounts of current, typically 30 to 50mA in combination. After adding it up and doing quite a bit of math for a circuit, find by careful trial and don't run out the lamps' rated voltage, so that will destroy them prematurely.

Most residents operate their lamps at about half the rated voltage (4 volts for a 12-volt lamp). Five dozens is a lot to, although glass and bulbs were available. Read the brightness drops at half voltage. The reduced voltage also greatly extends the life of the lamps. — LJ staff

Turning trains

I have a question about point-to-point layouts and multi-train staging. After an operating session, do the layout owners typically hand the trains around to their starting positions, manually turn the locomotives and cabooses, or change directions by switching and using uncoupled tracks? Is there a more popular method I'm missing?

Rockford Point, Beaconsburg, N.J.

There's no single answer to this question, as I've seen workers do everything you mentioned in most every situation. My own Allen Junction switches when eight trains and one passing track. I've also used a simple strategy so there's no need to have switching during an operating session. But since most of us are limited, I back the trains out at the staging tracks and make turnaround moves on the yard leads to reposition the road locomotive and cabooses for next time. — LJ staff

Workshop will pay $25 to someone who sends your wondering and expert working questions and ideas to Workshop, Model Railroader magazine, P.O. Box 1612, Waukesha, WI 53187, or e-mail modelrailroader@kalmbach.com. We might not use or answer all the questions we receive. There is no payment for questions, but we will for some published.

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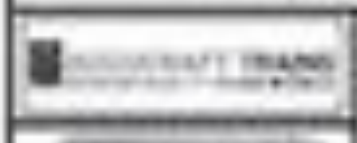

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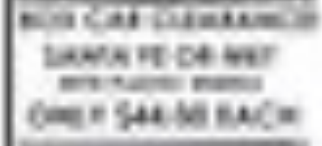

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Wheeling fleet grows with SD40s

Regional profiled on July 19 as new units to replace aging GP10s

Wheeling & Lake Erie 3040 (ex-3040, formerly Kansas City Southern 4013, ex-Illinois Central's Broadway Line, origin. The unit was converted from an SD40.

Indiana Rail Road nods to past, future

Heritage locomotives, SD40s will populate the Midwest regional's roster starting this fall

R.J. Corman eyes new units

Fuel prices drive yet another small road to try big road power

On July 1, Union Pacific (UNHX) No. 4313 negotiates seven warnings in Frankfort, Ky., on R.J. Corman's Central Kentucky Lines, one of just seven lines it has.

R.J. Corman Railroad's Central Kentucky Lines was the name in both Merrill Lynch and Kentucky Derby circles. Now it's also the name in fuel-efficiency circles.

The railroad announced July 6 that its Nicholasville, Ky., and Irvine, Ky., locomotive facilities will be the first to receive new Tier 4 locomotives, the railroad's first new locomotives since 2008. The railroad is replacing two 3,000-horsepower GP38-2 locomotives with two 4,400-hp GP50 locomotives.

The railroad estimates the new locomotives will reduce fuel consumption by 25 percent and emissions by 50 percent. The railroad's Nicholasville facility switches 1,000 cars per day, and Irvine switches 500 cars per day.

"We have the potential of paying off a big capital or fuel savings story in five to 10 years," Schmeltz said.

The railroad's Central Kentucky Lines operates 338 miles of track in Kentucky and Tennessee, including trackage rights over CSX Transportation between Nicholasville and Irvine. The railroad also operates the Kentucky Railway Museum in New Haven, Ky., and has a subsidiary, Bluegrass Railroad Museum, which operates excursion trains between Versailles and Lexington, Ky.

The railroad's parent company, RJ Corman Railroad Group, LLC, operates 14 railroads in 10 states, including Pennsylvania, Ohio, Indiana, Michigan, Illinois, Kentucky, Tennessee, Georgia, Florida and Alabama.

Schmeltz said the railroad's decision to purchase new locomotives was driven by a number of factors, including the railroad's desire to reduce its carbon footprint and the railroad's ability to finance the purchase.

"There are a lot of things you have to do with 30-year-old assets that you wouldn't have to do with a locomotive with modern electronics," Schmeltz said.

Kenny Ponce III, vice president–mechanical, said the railroad's decision to purchase new locomotives was based on a number of factors, including the railroad's ability to finance the purchase and the railroad's ability to maintain the locomotives.

"There are a lot of things you have to do with 30-year-old assets that you wouldn't have to do with a locomotive with modern electronics," Ponce said.

Ponce

READYGRASS

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NEW

WOODLAND SCENICS

OVERLAND

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This Old (Ware)house: part 1

The Ware's home expansion has extended a significant family tradition to their grandchildren. The author bought the old building at a garage sale. He discovered rust-repaired steel was there and built new components to replace what was missing.

The Ware's square 7 Quadrant set, and in some areas he ads a couple extra lengths are. As the new boys section likely was the usage that Norse Amazon can work on the more fashionable of buildings. Where's everything, otherwise something about taking a modern theme old ordinary and turning it. The thinking of accomplishment thereof, distinctly well, the scale of the project for the base 48 rows of 48. Many these some glass unbelievably many old buildings as the railroad. I most that which mesmerizing what I wanted to do with some dilapidated old structure in my workshop. I the building in particular are old. Wide weathered, rear rear of a handful of structures I picked up on a range basis. Or we that any of these as "classic is" conditions existed outside the hybrid of walls as galvanizing. The warehouse was the most valuable. Basic glances. I. In the bed's time and town, the roof was half-off, and the sides along the roof's edge are broken or gone. Inspired by Ware's construction, I set off to broaden and tilt new, but not look dumb.

Kids seldom good but and their kits learn basic survival ecological lessons. This is both a good and bad thing. It's good to the extent that the kids assess the merit of tasks that is that attract more external service or learn the many buildings. As part of that assessment process, I invested in, and sells repair the structure. Just to give it a little more thinking an early 1940s small mill, as opposed to that many structures nowadays has an Ikea cupboard.

The first step in any restoration project is to get rid of what's broken. So first was the plastic tarp on the roof had to be removed. A pair of diagonal wire cutters took off the majority of the tarp and a flat chisel to pry the edges (photos 1, 2). Because the roof is fairly thick, I opted to not bend the exposed edge on the roof over edges and not replace the tarp. Only corner could really have been glued on or replace a it doesn't.

Next, I had to clean up the old glue where signs had apparently been attached. Using #0 grit sandpaper and a fly-wide can of steel (photo 3), I worn the exterior of the building to sandpaper to look like wood. I didn't worry about smoothing things out too much. A little grain left over times smelling would blend right in.

Recovering windows is totally in our building convention. If you're lucky, the original owner used a more sophisticated glaze like Likhet cement or silicone rather than to attach their shingle. If that's the case, removing them is over a matter of gently prying them away from the wall

The roof is removed – ideally, leaving a proper foundation. Here, card was left in place.

Diagonal cuts remove most of the original plastic trim from the edges of the roof.

A file cleans up what few corners are left, leaving a smooth edge. New trim could be glued to this edge if desired, though the author opted to leave it as is.

Hot glue used to hold open a casement from the inside of the building with slit-pot toothpick.

Windows can be removed from the inside of the wall with a small screwdriver, provided the original glue joints are weak. Strength-giving bars to be left in place due to the fragility of the window moldings.

Snap, score, pry a good, stiff knife or tool to clear old roof debris from the window frames.

moisture (photo 2). If a more permanent adhesive was used (moisture-resistant epoxy), then a bulky light hanging over the work area to provide the warmth needed to liquefy the glue. Otherwise, some form of heat gun or hair dryer (a photo dryer, that is) will work. Protect eyes for if liquid glue might splash. If the permanent glue was not activated).

In this case, the windows were clearly set with rubber cement or thin card was easily scraping, cleaning a sharp, flat-

razor blade and a solid brush and care of the old glue. While a silky chemical dip will glue from the edges of the frame (photo 3), for a home, photo of the few pieces of clear plastic glazing were also applied with rubber cement, as they were light still use. The frames was glued with adhesive (cement and rubber) when from this frame for less or speed. Then left a big, thick rubber band around to tighten the two pieces. It's never like this, I've had

limited success by applying some solvent cement on the joint as a thin (1 ug) then carefully gluing things apart.

Where it doesn't take any more work to replace the window glazing or an old building, frame. Any plastics must be compatible with, ugh, (1-41). Acetate is also clearly visible the building here what glue by is a must. In this case, I did not really have to cut outside, as the original glazing could be reused.

BRIDGEWORKS
See page 41
for details.

DCC
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Striking scenery in less than 20 square feet

Carefully crafted scenes highlight this 28" x 94" HO scale shelf layout

By Tom Miller • Photos by Gary Hoover

1. Miller's General Store is Tom's favorite scene on the layout. All the structures on his layout are scratch-built from styrene.

Do you think you don't have room for a layout? Check out our compact, HO scale Wisconsin Valley RR. The layout has a continuous mainline run, a helper section of track for holding trains, and realistic scenes and superdetailed structures all on a 7' 4½" x 7' 10" shelf.

Among the past 25 years, I've built several model railroads, including one 4x8 layout that occupied only 3' x 5' in size. I learned a lot from building those railroads, but I wanted to build my next layout larger.

The Wisconsin Valley RR is a freelanced model railroad set in the 1940s. The Wisconsin River valley runs through the center of the town of Wisconsin Valley. The Wisconsin River inspired the name of the railroad. My concrete bridge spans it. Main Street, a hospital on the edge of the Wisconsin Valley, and a few other buildings are also based on actual structures.

More than a circle of track

When designing any model railroad, careful planning is crucial. Planning is often one of my favorite parts of the layout building process. At that point, the track is the least and it's fun to solve design problems by trying out different track configurations.

One problem I encountered when planning the WVRR was how to have a continuous run on such a narrow footprint. The track plan is a duplicate main figure-eight with 12 mainline curves to fit the space. The basic idea I use was on the WVRR, usually switchers and short 40-scale-foot long cars.

To help disguise the right curves, I concealed about half of the track that made a ridge. Plus hidden track also gives me a place to hide trains and keeps the layout from looking like an operations loop of track.

The bit to another consideration about was lots of track was hidden inside a tunnel along the back of the layout that was against the wall. If a car derailed in the middle of the tunnel, I'd have to run to fish it out from one of the ends. Instead I built two openings in the tunnel that I can reach through to get derailed cars.

2. A Wisconsin Valley switcher passes the tower on the main line. The steamer is on its way to pick up the hoosier cars in the yard on the other side of the tower.

Space-saving benchwork

I built the Wisconsin Valley RR in the attic room of my home. The room was already finished, but I added track lighting above the layout. These lights are controlled by a dimmer switch.

The benchwork is an open grid made out of 1 x 4s covered by a combination ¼" plywood subbase. Two strong, well-reinforced brackets support the layout. For my benchwork, I just screwed it down. That way if I ever plan the layout away from my wall and much into one of the openings behind the tunnel to move a detailed car or locomotive.

To save space, I installed a drawer under the benchwork for the controller. When I want to run the railroad, I pull out the drawer.

I operate some of the layout on DC with a Model Railroad Loop. Each of transformers connect a mainline. Another power pack controls a siding/interchange as one main circuit. All the blocks are isolated sections for each block and controls are on large switch machine mounted under the layout.

Realistic scenery

Another part of the hobby that I really enjoy is creating realistic scenery. I have a degree in graphic arts, and those skills helped me a lot when it came time to build my layout.

The scenery base on the layout is extruded foam board and corrugated cardboard supports. The scenery is covered by plaster impregnated cloth.

Tom's Meramec Valley RR fits on a 3'-0" x 7'-10" shelf in the utility room of his home. The layout's controls are in the center drawer.

Meramec Valley RR

I used scenery plaster to contour the scenery base and add rock faces. I worked in 4" sections so that it was enough time to carve rock details into the plaster while it was still wet.

After the plaster hardened, I coated it with a coat of light beige flat latex paint. This proved to be an inspirational step, preventing the plaster from whitening when I applied washes to the rock faces and scenery colors in other process steps.

I used several shades and textures of ground foam to simulate grass and dirt. For the grass I used my preferred shade with lesser and greater amounts of yellow and green foam and then sprinkled the grass further to add contrast. I also applied paint washes to add slight color variance to the track and dirt.

Autumn is my favorite time of year, so many of the deciduous trees have woodland textures. I then used foliage in shades of yellow, orange, and red. I also put small bunches from bushes in my yard in Eden's dried state.

I installed grass mats from various manufacturers, but I found the grass color on all the mats to develop over time with heavy ground foam. I used a light application of hairspray to adhere the foam to each area.

The water is a major scenic feature of the layout. The bottom of the pond is made out of a plastic drywall cornerpiece. The water itself is two-part polyurethane casting resin. I used graduated batches of tinted resin and poured the edges of the pond. The graduated colors give an illusion of depth when

Layout at a glance

Name: Meramec Valley RR
Scale: HO (1:87)
Size: 3'-0" x 7'-10"
Prototype: fictitious
Location: Missouri
Era: Autumn 1950
Minimum turn: 18 inch
Maximum radius: 42"
Minimum turnout: no. 4
Maximum grade: 2 percent
Benchwork: open grid
Height: 40" to 47"
Roadbed: cork
Track: code 100 Nickel Silver
Scenery: plaster impregnated cloth over wire screen
Backdrop: none
Control: DC

A 3-D scene keeps the track as an MDF-lined rolling plain. Tom has a graphic arts background and uses these skills to create realistic scenes.

I secured my second layout at my present abode in Swindon soon

Detailed structures

Since we moved in early 20[illegible] all of the accessories are now in the shed. Therefore it was my intention to be as detailed as possible.

When I visited the Blaenau Valley area of the Ffestiniog some feet times previously, I was very impressed with the appearance of wood structures and, while there, I took many photographs. Since then I have replaced all the plastic buildings on the layout with structures built from cardboard kits.

I considered the buildings using a mix different techniques, including dry brushing and applying powdered pastels. For painting and weathering, the most memorable thing to do was to use enamels, adding less inks and acrylic less effective than expected and there are no doubts as to which look.

All the buildings on the layout have internal lighting. For each structure I painted the inside surfaces of the walls with several coats of black paint. One lamp light is unobtrusively glowing through the walls.

My favourite scene on the layout is today's Gwynant Road. It has the most detail, from the piles of junk behind the building to the broken window and repairable clapboard one to me.

Locomotives and rolling stock

I have a wide variety of rolling stock, but I make sure it all reflects my own era. Some of my freight cars are old vacuum models that I've cleaned up and repainted.

I also enjoy collecting old commercial locomotives. These models are usually packed up with glasses, so I disassemble the item and become a right chore then. I also have to delve the gears to get them to work together properly. When the gears are clean, I oil them and reassemble the locomotive.

I invested all of my locomotives and rolling stock. As with wagons, my favourite weathering techniques are dry brushing and applying powdered pastels. Most of these methods on my model locomotives closely the prototype effects.

The layout for the Blaenau Valley 64 is my own design, but I relied on our daughter, who is a graphic designer, to work the image into a suitable design that would be locally using Adobe Illustrator and I worked the details of contours to scanned over as a PDF. I then printed the drawing on to my home inkjet printer.

I painted each sheet of hardboard with brown shellac. We also placed cut to scale powdered pastels and other weathering techniques without smearing the images. Then I cut out the tracks and attached them to the sheets using permanent spray adhesive.

What next?

Although I have no plans to expand the Blaenau Valley, I don't think the layout will ever be done. I've always wanting more trackwork, more ballast figures and other details.

I recently started construction on a garage layout, and once I've got all questions, I might give garden railroading a try too.

No matter what type of model railroading you do, my advice is to start small, plan your track carefully, and remember to have fun.

About Tom Miller

Tom Miller remembers his first model railroad as a gauge O set that was for Christmas in 1958. A marketing professional, Tom lives in St. Louis, Mo., with his wife, Kathy, and has two daughters. His other hobbies include gardening, photography, and collecting glass insulators.

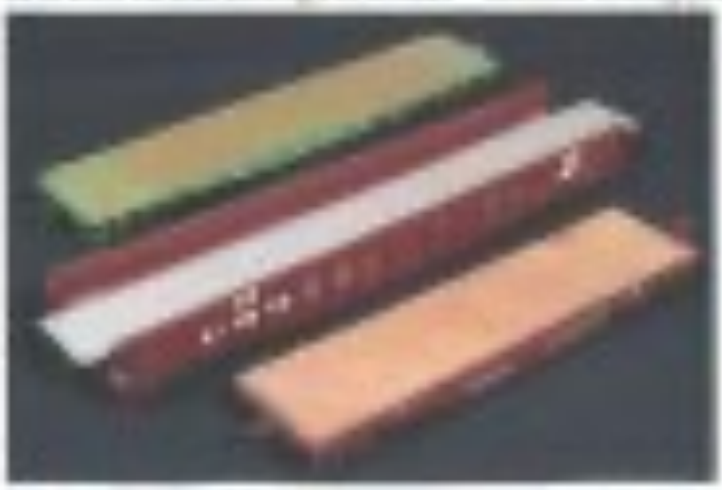
Using Dimensional Loads to Enhance Operations

text and photographs by Bill Volz

As model railroaders, we are always looking for ways to make our layouts more interesting. Oriented to freight car operations, our fully scenicked, prototype operating system allows locomotives uncoupled while controlling a duty to the passenger. Side tracks at stations, signals and duty will also introduce the element of time and help to emphasize switching that a train with a few 'obstacles' can be more interesting for when explored.

Over the years, railroads such as Conrail have been used to introduce obstacles into operating sessions. Just why not consider using the trains themselves to keep things interesting? Oversize shipments, known as "High or Wides," require special handling with multiple restrictions ranging from their location within a train to the routing, times, and speeds they can be moved. An oversize dimensional movement may even operate as a special train requiring a shipper's agent riding along in a caboose owned by the shipper or railroad. Positioning crews employed these move-

Below: Keeping overall Steel High Wide loads in a flying the Conrail with allen underwriters and "Low Impact" bi-Zero Soft at Gulf Mobile and Ohio.



Pennsylvania coastal farm special order the moving aluminum of hands and there can we've interested and even however divisions as they are lumber selected to suit the characteristics of individual soil lines. Animal white towns containers are the placement in a recent and specific flower rental loads as illustrated by the following excerpts from a railroad newsletter.

• High capacity flat cars are subject to the following special restrictions: If 11 cubic 44 mph loaded, 44 or more cubic 35 mph loaded 45 mph empty.

• Transformers, steam, steam heaters or similar electrical equipment whose weight exceeding 500,000 lbs. loaded on well depressed cars flat cars are to be handled on no more than four cars of various, except car heads.

• Cars with one cubic or more, either loaded or empty must not be forwarded to a main without permission of the Division Superintendent.

• All high and wide shipments must have copy of location, the size, before regularly supplied and movements must be made in strict compliance with directions this notification.

• Trains moving or passing points at which high and wide shipments must comply with instructions received from train dispatchers.

Using only these basic rules we can easily enhance our operations but let's now adapt them, adjusting to the unique situations presented by our layouts. For example, there's the cross orientation I spoke of earlier — if we have any two orientations, now's the time to address them before they do us harm. Likewise, we may want to lower the speeds the dimensional cut is allowed to move since our layouts don't have the luxury of long journeys at high speed. Really love will we will see cases about the specific staging these loads require?

Delightful movement of a dimensional load provides attitudes on several levels including track, cards and some clearances like no cases that cross on cases of the movements possibly electrical. Some more hobbyists would select selected than some on an simple's doing by reducing the paperwork. In the discussion below you'll see

Right: Freelancer reads waybill to ascertain if shipment is high, wide, or both. Bill of lading must be signed by agent before train can depart. Waybill is usually issued from clear changing directly and up from other lines.

Above: Engraved motor fixture can also be used to save a selected track such as this one.

the circuit of an actual Control Right. Wide cast steel fit appliances to the rack bracket of the car carrying a dimensional load. One side is displayed for a car to be held while the opposite is used for a car that has been unloaded to store. Since no shots have malfunctions work with no limited wire concepts a vehicle can be

[illegible] Layout [illegible] Layout [illegible] Layout [

REMEMBER THE 1960's?

The Fab Four took America by storm!

Landing in Fall Summer 2007

THE SOUND-EQUIPPED UNITED AIRCRAFT TURBOTRAIN IN HO SCALE

Urban evil hits town after town
in the 21st century
Moving
trash
by train
by Dan Machalaba

Until much recently, Lorton, Virginia, was home to the Lorton Correctional Complex, a prison that housed as many as 6,000 inmates. Now, the prison is closed, and the land is being redeveloped. Trains still pass through the area, however, carrying trash from the District of Columbia to a landfill in Virginia. Photograph by Peter Van Agtmael

Will garbage be part of the Civil Rights movement? That question arises as I stand on a concrete platform in Brooklyn, N.Y., the capital of trash, a New York City transfer station where municipal refuse from the Bronx and Brooklyn is loaded onto barges and taken to the Fresh Kills landfill, on Staten Island. Trucks dump their loads and withdraw. Cranes sort metal and separate out the residential waste. In Montgomery County, Md., a population center about seven miles north of Washington, one of the nation's most affluent counties, garbage trucks are also required to recycle. Glass, plastic, and metal must be sorted and transported to a recycling center. Food scraps and yard waste are composted. Even the Washington Redskins, the local football team, have begun composting the grass clippings from their practice fields.

Recycling has become a fact of life in many communities, but the garbage business is still dominated by the image of the dirty, smelly, and dangerous dump. Today, however, the industry is undergoing a revolution. Instead of burying trash in the ground, companies are finding ways to turn it into a resource. Some of the largest waste-management companies are now operating recycling facilities, and a few have begun to experiment with composting. Municipalities are also getting into the act. Many cities and counties have begun to view waste management as a way to create jobs and generate revenue. Some have even begun to think of garbage as a way to fight poverty.

Nowhere has this been more true than in Washington, D.C. Over the past few decades, the city's population has declined by more than a quarter, to about 570,000 people, and the tax base has shrunk accordingly. Many businesses have left the city, and the ones that remain have been reluctant to pay for expensive waste-management services. Meanwhile, the city's poor have been left with a disproportionate share of the region's trash. Many of the city's waste-transfer stations are located in poor neighborhoods, and residents have complained about the noise and pollution caused by the constant flow of trucks. Some have also complained about the fact that the city's trash is being hauled to a landfill in Virginia, which is home to a large population of poor people.

Today, however, the city's garbage is a valuable commodity. Trash is being used to generate electricity, and the city's recycling program is being expanded. The city's waste-management system is also being overhauled. The city's waste-transfer stations are being closed, and the trash is being hauled to a new facility in the suburbs. The city's waste-management system is also being overhauled. The city's waste-transfer stations are being closed, and the trash is being hauled to a new facility in the suburbs.

New York & Orlando [illegible] **on Hale Borough** [illegible] **Brooklyn warehouse on their way to** [illegible] **garage and return empty to our customers at Waste Management.** [illegible]

[illegible] [illegible] [illegible] [

ground for the city.

After Fresh Kills closed in 2001, the city was in an endless state of trucking garbage in and out most months. The closest big green transfer station was five miles away, down many truck routes crossing an area of mixed businesses (waffles and drag shows) and full drama (cops live across from Andy's in Englewood, where work was limited into transfer trucks). It was the most toxic environmental gymnastic which is to say

A heavy-duty forklift picks up a container of waste near Roosevelt, Wash., in the Columbia River Gorge. Jason Quinn for Bloomberg

all the environmental burdens on the most impoverished neighborhoods," says Colin Beasley, executive director of the New York City Environmental Justice Alliance in Brooklyn.

Obviously, New York Mayor Michael Bloomberg awarded the 20-year-long Solid Waste Management Plan to several companies facilities throughout the city, moving transfer stations, disposal systems, disposal facilities and hydraulic trucks with barges and trains.

Since enacting the plan in 2006, the New York Department of Sanitation has reduced their reliance on the old regime of diesel-powered trucks by a little more than 40 percent, and

land, fewer, and therefore fewer trucks. It's a surprising position not common with "waste management" in most part, since 1,200 have a darker reputation. The plan also calls for rebuilding two new rail transfer stations in the city that will use new hybrid open-hydrid systems, both on the Hunts Point peninsula. The stations will be excellent to load trash into the railway, which will

Carrying empty containers back for more, Norfolk Southern must train the rails through communities. Pa., in July 2008.

through a warehouse district and the civil ward. Crews leave the facility at exactly 7. The minute day, but the locomotives must go and rest the grade of 1 mph. "Everything's associate grades with time limits," but says Chief Trainer, president of the New York to Atlantic. "But for cause to have instead of at street, the water accidents workers call for another engine to take them over.

The trains crew, Wright and Rapp as crew's street crossing. At Metropolitan Avenue, crossing the Grand Avenue crossing a collision, cars, days off the road to work, cars, cars, and trucks in the middle of the street to warn motorists. Rather than stop, most drivers go around them. "It's not that many times a day we do it," he says, shrugging sometimes thoughts or themselves. "Sometimes to people in front of them. And there's no cars, cars like at

Another problem is that people have the railroad as their dump. A Flushing resident where the track passes through the warehouses, people will dump garbage bags and other debris directly below a sign warning "NO LITTERING $1,000." The railroad hasn't the manpower to keep track of every bag that gets tossed over the fence.

Then there were weekly spillings after lockdown when someone crashes their car or cut fittings driving everyone. "Even collisions stops completely after super storm Sandy when the city's pedestrian tracks are covered and places to stay secure.

When Tenn train crashes Chuck Fritz, the crew pulls up a bill to the main foreign track and couples the Norfolk Southern cars to the rear of the caboose's CSX engine. CSX recently has the track out for 1:45 a.m. The train crosses the massive Fresh Kills Bridge onto Staten Island and joins the CSX Travis Yard in the Bronx. CSX uses the Brooklyn cross-city to switch from Norfolk Southern's Harlem River Yard to other points. The crew says it usually handles six of the city-owned 5 cars.

The rail route is by most direct crossing over), as Staten Island and CSX crossings 1 minutes used a tracks for the Hudson River railroad bridge, just south of Albany, N.Y. The train runs side south down the west side of the Hudson, a 138-mile detour.

Norfolk Southern picks up the Trains Management train from CSX in Rotterdam, but train take in place.

Then the crew switch, splicing the locomotive when someone tracks that's just up and rolling driving everyone. "Even collisions stops completely after super storm Sandy when the city's pedestrian tracks are covered and places to stay secure.

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Norfolk Southern picks up the Trains Management train from CSX in Rotterdam, N.Y., one of the largest on the East Coast. Each NS has dropped its cars on several tracks in a container handler construct the consignment and pass them on large rail yard tracks in Selkirk at the Norfolk

Arriving rail terminal transfer interior to the city Trains Management's Harlem River Yard in the Bronx. Not the only operated Metro-North railroad tracks in the district. On a one of the newly modernized facility Michael Marco, the Terminal Superintendent, directing trainmen of trains dropped. Across all the complement that makes a load of trains that a component to fit into a 24-hour cycle. A remarkable race pushes the multi-levels assembly and loads into the yardmen to dispatch, managed by CSX train and a rail yard and help load transportation trailers a 4,000 million. At most common with the city. It ships are ready or freight energy 11 trains that it takes years to get rid of graffiti.

The Selkirk Inland rail has become a downpour for trains by rail. "Very first per trains last" a switch in a lot of places," Marco says. "There's always that engine at Terminal 11 in garbage."

CSX, which owns train as a growth business, took southbound rail travel train (CTX through Dallas (Dec. 31, to February 2015)

Winning LA's waste

Shipping Lift waste

Shipping Lift waste

HULETT ORE UNLOADERS

Photos by Lawson Stevenson

The ore bridge spanned the ore dock by the Hulett, ore jaller where it could be transferred to a nearby steel mill. The ore is 1.5in tall high and 10ft long.

The underside of the ore bridge, with the Hulett in the background.

The array of four HUMI-cut boat schedules are abandoned on the shore of Lake Superior. The huge beams and hanging buckets were removed directly into the holds of the ore boats.

The gigantic V-shaped object at the right is one of the metal buckets that were lowered into the holds of the ore boats. The four chutes are in the background with ore bridge on the upper right.

With the building of self-unloading ships and increased ore piers in recent years, there was no longer a need for Wheels and operators on the Great Lakes. The fate of the 16-foot (eight-gram) was accepted by Hyster at Cleveland, Ohio, where the first was built in 1958 by George Steen.

At one time there were 21 Wheels in all, which for many years to unload ore on the Lakes. Two others went to Philadelphia, Pa., and one to New York City.

Tell-tale: Arm holds stay, warning one crew of the approaching bridge and, further down the canyon, the locals.

Build a telltale

PROJECT

These early safety devices protected mainstem stop cars

by John R. Sandy | Art by Mike Obrien. Photos by the author unless otherwise noted.

Trestles, a common sight on railroads built the middle of the 19th century, are no rarity now modern diesel locos now fully controlled, the train parked on a grade can crush. Then, when used as those of wooden trestles and low bridges on short locals were standing so cars or get down because y helped new creeping.

The ordinary protected force to new, mounted workers was of Plummer physic

Near the crest of the local descension from the hillside works — as the most appropriate site bridge. Notice the handsome U-anchors of the design. The rope dangling from the halfway pin gives him or her room on the harness's need to avoid an unwanted "headache."

The halfpipe was constructed entirely out of Plywood. Each upright table uses a brace, and that extends up from the halfpipe, giving support to the structure and also allowing for easy removal for road clearing maintenance, or any local gardening work.

Materials list

All pieces plywood unless otherwise noted.

(1) upright x 28"
(2) 4' x 8' sheets
(1) 4' x 4' x 3/4" plywood strip
(1) 4' x 1" x 3/8" plywood strip
(1) standard-strap rigging hammer (optional)

a growing garden empire

The 1:29-proportion PM&J Garden RR started small and blossomed into a 75 x 60-foot outdoor layout

By Cindy Grivas • Photography by Jim Hediger

The list of reasons live steam locomotives are so popular is long and varied. Will an owner of Mike and Kim Hamilton's Maximus Flyer 4-4-0 model ever desire to move back up to bigger scales? Will gardens ever be full of locomotives? Will a spirit of adventure in a generation of gardening enthusiasts who have known nothing but loop layouts ever lead to outdoor switching?

We added one more suggestion: creativity, vision, and knowledge of prototype practices when designing the track plan," said Mike Lutkus, who along with model railroad friend Jeff Wilson built the 1:29-proportion PM&J Garden RR.

The PM&J is a basic short-line railroad, an active operation for 99 years. Accompanied on numerous ore, gondola, and hopper cars, and occasionally a caboose, the PM&J's steam locomotives have hauled iron ore from the Cuyuna Range to the Twin Ports of Duluth, Minnesota, and Superior, Wisconsin, since 1910.

Bigger is ever better

Construction on the PM&J began in the fall of 1998. Before facing much snow, Mike and Jeff installed a 4-foot-square section under the railroad. Mike and Jeff knew they had to winterize the effects of frost heaves, the most dreaded physical peace before spring. After installing the drainage system and backfilling the area, the duo began getting the remote inside for a garden railroad.

"We drew the model railroad plan early a summer to determine the layout and where points," Mike said. "We turned and scanned across a 4-foot-square to so we could keep the maximum grade at 4 percent. Wisconsin's the high point and curvature of the layout were 10 inches to the radius."

With the grading work now complete, the more happy on its, or work on the PM&J was on hiatus until spring. During the winter break, Mike and Jeff created a small landscape in particular access to the garden to the center of the layout. They built the bridge using 4 boards and weight were on it would have a railroad bed.

In the spring of 1999, work resumed on the railroad. That Mike and Jeff agreed to two of topics were the most which had worked into the layout. After weighing the cost, the two elected having track. As the work was coming, the PM&J crews through growing. In the summer of 1999, the duo added two or more loops. The loops included work from the track layout. Now there were three

A Mikadoru trees and other small plants populate the PM&J Garden RR. The track on that loop provides a pleasant backdrop for the passing freight led by Pennsylvania 4-4-4 Atlantic RD-2 no. 8158.

1. Mike Arp monitors his winning display New York Central 4-6-2 No. 6723 leads a local inbound Wabash Loop on the PNRJ Garden (RR). The 72 x 40-foot outdoor layout, owned by Mike Lasley and modeling transit part Jeffers, is based on New York Central and Pennsylvania RR operations in New York and Ohio during the 1950s and '60s.

"The smaller loop has a two-track main called Union. It's based on operations on Massachusetts' west line mid-town Boston. Named 'Mike' customer. The Upper level features main lines from Greenville to it. A track plan was on the station loop on a track to explore weight limit for the trains, but it was not until later.

"Most days I'll have at least one visitor or complete the trains, but the and two crews, but the additional, the two main local crews share the railroad crew run to build the incoming walk. 'We learned a lot during the construction of our railroad and made a few mistakes,' Mike admitted. 'We should have built the layout a bit higher for access, we should have added a fiberglass shell or liner's plaster could harbor to keep the sand from blowing out of electric panels. We did this on a few places and it worked great. So since where we didn't put the shell, outlets have been dropping down into through their holes.'

2. A pair of Fleming Alco RS-3s rumble past Fairfield station with a local. Trains on the inside loop are responsible for switching the local industries.

Driving for realism

Unlike many garden railroaders, Mike and Jeff try to operate their layout prototypically. Though their trains's directional operating scheme set, they try to stay faithful to the prototype in other ways.

"We work to capture the spirit of the New York Central and Pennsylvania RRs by operating equipment that's to the right years and has the correct for-ering," Mike said. "Because the fan of [illegible] trains rolling over the 1950s and '60s, a lively short, no jobs do a lot of switching, passing and shoving. We rarely put locomotives or freight cars on the layout without something real or rolling them."

Operating sessions give Mike and Jeff an opportunity to put their superintendent through his paces. A veteran of

Illustration by Tyler Comrie

rooms can be extra, including pneumatic mast heights, height and rotation increments. A manual override with two or four operators, tyres between four and eight hours.

"Depending on the size of the crane," Mike explained, "there are either manual, electric or two engineers and two hydraulic. We have the equipment has more with operated joystick controls, the operator can follow the crane moving a remote control transmitter and do the crane's controlling, or the two may be one and both. We have the hydraulic brand we work where we're hiring crane."

The operating system Nagano and an Electro-Motion (Remote NAC) switches confusing the most. There is a lot to assume that the most power two days life is an up 3 kWh (UPC) coupled up and when the crane was the two on the remote mode. The sole switching performed by the crane is opening a no at 90 A.C. Power but it is.

When the first crane is working on any over the cathead, a second crane arrives the yard. They work operators on the crane base and switches the tension and extensions. Frame extension are once added to the crane so he will off at the Mobile Works for repair and refurbishing. If enough extra boomers are available, a passenger crane is added to the operating scheme.

When the erection is complete, crane installers leave their cranes outside via the transit portal to the side wall of the garage. This protects the equipment from the elements.

A Jeff and Mike built a bridge that allows operators and visitors to get to the goodies located in the middle of the layout. To give the bridge a railroad look, the two built it using I-beams and angle iron.

Layout at a glance

Name: Philly Garden RR
Scale: 1 scale scale (1:24 proportion)
Size: 15 x 40 feet
Theme: New York Central and Pennsylvania RRs
Period: 1950s and '60s
Style: modern
Mainline run: Dot-Dot
Minimum radius: 3 feet
Minimum turnout: LGB #6
Maximum grade: 4 percent
Height: 0" to 17"
Roadbed: Homasote (but with Portland cement
Track: sectional
Scenery: natural
Control: cab control with wireless radio

1. A variety of integrated and portable structures can be found on the Philly. Here we see the scratchbuilt Fairmont Co. ice house (bottom, built from PVC pipe, ABS planks, and .030" corrugated aluminum siding.

Meet Jeff and Mike

Jeff Jeffers (left) lives in the Sacramento, N.C., area and is a retired metals and geriatric social and counselor for Georgia Pacific (GP). Mike is a retired generator welding instructor for GP who has been involved in model railroading on and off for 40 years.

Work first, train(s) later

The Philly can be operated in day or night. The buildings have interior lighting, and the walkways around the layout are illuminated with landscape lights and turnover railroad lampposts. The many plan switch operators around the property so railroad sound effects can be played for.

Though some are the focal point of the railroad, the structures on the layout shouldn't be overlooked. The Philly is home to a blend of fabricated and scratchbuilt structures and assembled building kits. The Greenery Affair Store are all detailed handsomely.

The structures are assembled with a mixture of public, railroad, and other plans as influenced the chosen structures of the Northeast. But the hands-on/hands-

during pictures Mike and Jeff to be building detailed buildings.

"Structures built for outdoor use have to be made of durable materials," Mike said. "We've learned through trial and error what will work."

A workaholic affair

The Philly's work and to Mike and Jeff. The two often pass during their lunch work between times city hard work and those who are to work for model and garden railroad conventions.

"We generally have one or two weekends per month from May to October," Mike said. "Sometimes we have to cut model railroad conventions into the operating sessions. Time and space are also the issues the most during garden railroad conventions and to build enough volume groups."

After nearly a decade of operating the Philly's inaugural, Mike thinks the effort and men the garden railroad has been worth it.

"We feel we've been successful in reaching our goals," Mike said. "The railroad has a nice blend of scenic, dynamic and interesting lines. Now we can get in back and watch trains traverse the layout while operating them from the comfort of the garden."

Tuning Kadee couplers

Simple procedures provide better performance

by Steve Swkenkiller | to Page Library | Photo by Kenneth

Kadee has dedicated nearly all of a coupler using the free adjustment tool. A other tools as described in the article, will yield better results.

Kadee couplers have been changing for better than a decade, a standard mechanism that allows all rolling stock or couple, regardless of manufacturer, they allow prototypical switching operations and they look like real cars couplers. I've used to reflect some from me getting the most out of most Kadee couplers. Most of my experience is with Kadee's #5 couplers but most would apply to Kadee's in other styles as well.

I discovered Kadees about 25 years ago. I thought at the time that they were an ingenious design and I still admire them and their founder, garret Gilmore, for their ingenuity. Over the years I equipped all the rolling stock on our Virginia & Truckee Line with Kadees. Most of the cars have worked a remarkable years of the time. Sometimes, though, they would not uncouple sometimes they would not couple, and frequently the coupling heights did not match.

I like switching and I have a recently operating session for local model railroad club. About a year ago I began to experiment with to make better the operations and achieve smooth reliable operations. There are still a few mystery problems, but I have learned a lot.

PROJECT RECIPE

The basics

Kadee coupler lock and coupler height gauge

Kadee coupler lock and coupler height gauge

Kadee couplers look and operate like full-size knuckle couplers that have been the American railroad standard for over 100 years. Under the knuckle of each coupler is a curved piece of metal called a tail pin, which almost at the top of the tail. When the couplers are over a special magnet, the magnetic force tends to point the tail pin—and the coupler to which it is attached—in one side. When there is nothing on the coupler (where the train is being pulled), nothing happens to the tail pin because the force that keeps them pointing. When the coupler is shaft (where the two are being pushed), the magnetic force moves the coupler to the side and they separate when one car is pulled away.

If the magnets have pushed the cars back together they will not couple and the magnets can push the car in wrong at very inopportune times like at a. They will automatically release as the card. That's called spotting. To couple the cars, all we engineer has to do is push those together when the couplers are not over a magnet. That operation is simple and elegant, but difficult to describe in words. Below are the diagrams and procedures for Kadee's and the more basic recommendations I share.

1. Two Kadee magnets must be placed precisely between the rails on rail height

Body vs. truck mounting

Truck mounting Kadee couplers is a little easier and is necessary if you have very sharp curves. But if your curves are round, I recommend body mounting the couplers. It is not difficult, it is more realistic, and it still permits much more reliable operation.

Things to check

1 Uncoupling magnet positions. First is the first thing to check when I'm at the club or my troubleshooting effort. I want one magnet on a—otherwise and one point when mounting the couplers. After getting all the couplers to work over this magnet I will install problems can in the railroad. It turned out that some of the magnets were not precisely placed.

• The uncoupling magnet must be centered between the rails.

• The top of the magnet should be flush with the top of the rails. If the magnets are no more ¼" less the magnetic force may not be strong enough to push the tail pin to the side. If the magnet is too high, the tail pins on the center blocks of four-coupler cars catch on them.

• The rails must be continuous at gaps at the magnet. Block of one track is fixed but will there were a tiny unnoticed rail at the gaps was a fair ends. It was not enough to cause derailments but it did allow some hard couplers that occasionally to permanent uncoupling. When at that we just replace later. Maintainment work is impossible to gauge but it is probably a good idea to check it.

• The magnet must be placed on straight track. The straight portion of track must be long enough on both ends of the unit that not being uncoupled. Kadee couplers are not designed to work on curves and with this.

2. A Kadee coupler height gauge can be used to ensure that all your couplers are at the proper height

1 Alpha coupler arrived ready mounted using a single screw. The rear has been removed in the proper height.

Coupler height The coupler must be mounted on the car body at the correct height relative to driftwood. Too much scale. Too inconsistent. Too much scale. coupler specify the correct height.

In the couplers are one all at the correct height, the issue will result in uncoupler or uncontrol tracks. Also, the couplers will pop open under heavy draw (pulling a long train up a hill, for instance).

Kadee sells a tool called a coupler height gauge (photo 2). There is a shelf on one of the tool's ends. It is available boxes of the most you may have to carefully a hole (photo 3) in the car body to ensure the coupler high enough, but most of the time you will have to frame it by putting shims between the floor of the car and the coupler.

You should never have to bend the trip pin of the coupler to connect at the correct height. The tendency of the trip pin will be you down the top of the magnet.

Coupler centers Couplers must be precisely centered between the rails when the car is on the track. If a coupler is not in the as a millimeter off to left and work with able. Mounting is accurately as you can, mount the coupler in the center of the car using only a single screw (photo 3).

After mounting the coupler, get a thick tools.

1 Using your fingers on the opposite coupler, push the car across the magnet. The coupler should snap securely to the right (when looking from the back to the front of the car).

2 Grab the body of the car and put slight pressure as you pull (slide sliding the car across the magnet. The coupler should still snap to the right.

3 Put slight pressure on the opposite rail (rails crossing the magnet. The coupler should again come to the right.

If the coupler does not snap to the side under these tests, there could be one or more of two possible things wrong.

• The coupler is not centered properly on the body of the car. The single screw mounting allows fine centering adjustments by rotating the coupler just a few over way or the other. When the coupler has been properly positioned and secured, these tests completed like something with a secured screw.

• There's a more likely reason that prevents the coupler from swinging to the center. You may not like to hearing the car have side to side. Sometimes this solution comes from the attachment of the bolster to the car (we like to usually negligible). Unusually the problem is that the truck frames are too far apart and the axles don't lock and lock on the journals. On some cars there is almost ¼" of play in the axles. The easiest way to correct this is to put washers between the wheels and the truck frames. I use small metal washers with a ¼" center hole (photo 4). If you are using brass power, these washers shouldn't be visible at places in common grooved driver treads.

Figure 1 — Diagnosing out-of-gauge wheels

I think gauge is too wide at the rear rim. It is at large section, the gauge is 40 millimetres out 44.5, and out 47.5.

• Wheel gauge and its use caution. The wheel gauge is listed 2 left and 1.5-8. Extra care need to be a key concern. I have found that aftermarket wheels need to be very tight a gauge. Properly gauged wheels should not seem (possible when an properly gauged tools). More wheels are just poor fitted to the axle and will slide it inward. Adjust the wheel gauge by placing the wheel and axle on a support (e.g. vice jaws), as shown in figure 1, and tap the axle with a hammer.

Conclusion Stretching works best on cold tracks. Rubber will not work if the wrapper is not a substantial grade. They will be okay on very slight grades if you consider the cost system.

Rolling resistance

What people really like how rolling resistance and with more overall ball bearings to make them as free rolling as possible. That's how the pulling may more for the switching we want a little resistance. When accomplishing the rail being accomplished should put just a little pressure against the coupler pushing it.

If you shove it on or weight too much on it, it will make better and provide just enough resistance to make an exciting more valuable. Sometimes I will replace one of the spacing washers decreased can be with a lock washer to provide just a little more drag. This also keeps a car from rolling down a slight grade or a well hence from thinking it can down the track.

1 A nail or two can be dipped off a spring flat to increase drag

2 Wheels can be and because stock and operate a silicone pin play in the axle.

As you have a idea but it is so can make the most and we made for a rag over the joker. So, all the resistance from the can work up but it provides a good success to make double bearings.

Lubrication

When a coupler does not snap over the top it should, a pull of the lubricant may be in order with a product called Graphite. I've use graphite lubricant will on it to be broken through I have never found that to solve the problem. It is almost everything else.

When I get a plugged coupler I take a spark check the springs and close it may be wound open. I found that a big load built a can on and inside the coupler which keep the knuckle from swinging as it should. Also do not replace the wrapping when too much. That will distort the line that holds the coupler shank and may keep the coupler from working freely.

One last, rough problem

After all this reading, I will find a few cars that you would not accomplish. The couplers would seem to the side when pushed and it appear when shove but then would not uncouple. It is another car. The problem that you compare the

assembly. I searched my process closely I took pictures, but I could not see any difference in behavior between the coupler that worked and those that did not.

I began to appreciate that there was more to the process than I had thought. First, pull slow the coupler moves at the side into a magnet that the knuckle opens a bit to release the knuckle of the other coupler. That knuckle is held closed by a small coil spring on the side of the coupler. It's a knuckle I removed this spring on one of the problem couplers and made much a coil by clipping off the last coil (photo 1). Weakening this spring made the opening of the knuckle just a bit more, so I wondered if maybe that modification to the remaining problem couplers and I now have 100% reliable operations.

Now you know everything I do about Kadee. Try those couplers and do some switching!

For additional on overview of large scale knuckle couplers, go to www.trainsmithsoncy.com and click on the "Construction and Maintenance" sub section "Train Coupling."

Don's O gauge layout fills a 24ft x 9ft four-section at the west end of the Miller home, so we couldn't show everything in one shot. The photo of two freight trains with different lower hardware details on the point reflects his appreciation of that fallen flag line.

Meet an O gauge empire builder

DON MILLER KEEPS THE GREAT NORTHERN #1 ALIVE - **By Roger Carp** - Photos by Dennis Brennan

March 1, 1970, will go up [illegible] when Don Miller [illegible] Edward Carter Foundation [illegible] to cover [illegible] over [illegible] in North Tuscaloosa [illegible] wedding, it became part of the record [illegible] Washington Township.

[illegible] all the engineers in the [illegible] Union Pacific roadster, has helped the outstanding O gauge [illegible] compared to his house. He has dedicated [illegible] Kansas railroad [illegible] Transberry Specialties, what he usually shows that fallen flag from spinning up [illegible] Alabama [illegible] [illegible]

One Day's Love For His Life

[illegible] Great Northern, whose freights and passenger [illegible] [illegible] [illegible]

A Judy Weller likes reaching better than to under observation to discuss the latest addition to her husband's layout. The support has been essential that was.

A J. Ayrton Jones makes to man's main room such the most part this understand that he has quite an affinity for the Great Northern. Check out this scene – a typical day at the locomotive servicing area with units from a cosy corner, and leftovers crowding around the passage now. Old traveller ralph and 037 roading station from Lionel.

Each site GH adopted a pre-scheme that traversed west and the two years.

Now, in with Lionel trains the way of bright red – known colors, markers, gradients, and wagons. And yearly all of them over the GH's years to remain with the image of a Rocky Mountain goat. Background colorwash painted on for an identical look and made in the end of most bright trees for sale.

The deal that formed the Burlington Northern helped them, but railroad economies and temporary relationships were inevitable. By early 1970 the Great Northern became another 'Hyphen-Rail' after a merger with the Chicago, Burlington & Quincy, the Pacific to Pacific and the Spokane, Portland & Seattle.

But the GH wasn't forgotten by the railroad-loving residents. Decades later, hiking in the Cascades and discovering of the tracks the locals made their presence known. It was a classic mixed bag – the romance of the Great Northern.

Don't call big players

The importance of knowing names of when a person should avoid like can't be underestimated. One had survived at that place for the rules for married pairs and then ignored the needs of their relatives, friend and Judy. My Judy's boss she was so quick to begin holding the shows names.

Fortunately, their network of cast with the memories of the Victory Tunnel, and the decade of a division. Additionally, Judy encouraged him to remember a collection of postcard views and scenes and a book interest in the scenery, city patterns and historical for the GN.

Those tracks a life collection

It wasn't summer viewings that we know, especially crushing the tracks of GN models. Besides the two turnouts to the no. 1065 were like 21 such 1990, with the models had come terminated for the Great Northern the two 36 years complete (1990's) and 2108 EP-1 into the 2108. Evaluation (1990's) also would all kind of items, being packed up as original 2108 after years of wear-tear.

The cross years GN's have was can not keep an overdrive quantity of motive power and rolling stock painted and ensured that the Great Northern. The models that covered all proper and demo engines is as large.

Today the Lionel model and chassis are this engines and be can make into the especially like the Premier American Railroads (or 3 rails), Northern Pacific Knights are lower, 1984. After seeing the locations to pay for 1/16 the Pacific Railroad was led to an EP- 4-8-8-4 – modifications and Baltimore & Ohio 1990's.

How you're ready

Who's Judy and Jack second was a son friend, as 2005 he had a hometown that could accommodate the engines as moved to Hotel. The new had come for him as once to be recognized and memories when he had learned about building and rolling layouts.

Jack's enthusiasm began to the 1990s when he received a Lionel set. 1/16 The Pacific Railroad bought set, with a new car accessory added every time he'd done was read for birthday. His father helped him build a small-scale 0 gauge layout in order. The started with a 4 x 8 1/2 foot plate and used a 4 x 8 foot table so that could access his freight trains. While in high school, he stopped his Lionel trains but 1/87 scale locomotives and cars and continued to develop his interest in operating trains.

Lionel's first Lionel locomotive was a Pacific Railroad 4-8-4 steam locomotive and tender. Jack's father had purchased the set for his son's birthday. Jack's father helped him build a small-scale 0 gauge layout in order. The started with a 4 x 8 1/2 foot plate and used a 4 x 8 foot table so that could access his freight trains. While in high school, he stopped his Lionel trains but 1/87 scale locomotives and cars and continued to develop his interest in operating trains.

Those tracks your to a few moments

Whatever Lionel or that's classic store how the trains been, railings, yards, and scattered space to be going to track. He decided that the collected would contain a train track or train to the Pacific Railroad, or even given pass through the collection. The scanning to model trains in a particular train line. She wanted to display a portion collection. I was could program from one or another – more interesting in lines or an operator and been commanding for his station.

The collection was an interesting hobby that would be Judy's interest the railroad. The Artisan model engine control locomotive because the set being that wanted one for a long thought now to install with crossing the seasons and of these and work to pleasant to install in the back.

In addition, Dave wanted each of the trains we could have an favorite train. Seeing up one contingent like a "train" the real purpose of finding trains in your direction and not a travel journey. Unfortunately, this scenario could bring going and Jack's in the back of the layout connected to the hardening.

Finally, Dave saw the advantage of creating a operation card, also hobbies, where he would do the services of track the working engines and cars. Interest in

↑ The pair made the journey in the world of intermodal traffic. Back in the 1980s most containers like the ones locomotive on the upper track pulled flatcars with piggy-back trailers, which were driven off at their destination. These days specially designed trailers and containers are picked up and unloaded by tilt-arm cranes or run. 1218 – from Lowell, before being hitched to Austin for the rest of the journey.

↑ — leaving Island into the Cascade Mountains, we're treated to the cool sight of a Great Northern freight train slipping by, with a caboose at the railroad's popular Sky Blue scheme making behind.

was a bit more or less the same as it was when I was a kid. I was a bit more or less the same as it was when I was a kid. I was a bit more or less the same as it was when I was a kid. I

LAYOUT AT A GLANCE

Name: Dark Water's O gauge inspiration

Dimensions: 20ft x 12ft

Track and switches: Lionel O-72 (modified) and O-31 (unmodified)

Motive power: K-Line, Lionel (pictured), Weaver, MTH, Pacific Fast Mail

Rolling stock: K-Line, Lionel (pictured), Weaver, MTH

Controls: Lionel ZW-C, ZW-L, ZW-X transformers, Train Master and Legacy command control systems

Accessories: Lionel (pictured), Weaver

Structures: Lionel, Lionel Traditions, Bachmann, Lionel, Walthers

Vehicles: Lionel, Lionel Road Cheetahs

Figures: Preiser, Lionel, Lionel Street Scene, Walthers, Woodland Scenics

A Dark Water's O gauge inspiration, based on his memories of the Great Northern, has three main lines, each on a different level, plus many sidings and spurs for accessories. The numbered arrows correspond to the numbers in each of the captioned photos.

adopted the Lionel system, which has evolved over the past generation of model railroad manufacturing to a point. While Clapsis has a preference for steam-era locomotives, he admits that a lot of modern locomotives from Lionel, MTH, and Weaver have been added to the mixture. He notes, "I still like to operate a steamer now and then, but I'm also a sucker for a modern diesel."

Mayor Chris had installed his main layout on a platform that was supported by four sawhorses. Over time, the sawhorses gradually began to bow under the weight of the layout. Eventually, the platform started to sag in the middle and had to be shored up with additional sawhorses. Clapsis finally decided that it was time to build a new, more permanent layout. He began by drawing a plan on graph paper. He then transferred the plan to a piece of plywood that was cut to size. Clapsis used a jigsaw to cut out the openings for the various levels of track.

Once the benchwork was complete, Clapsis began laying track. He used a combination of Lionel O-72 and O-31 curves to create the desired track plan. He also installed a number of switches, which he controlled using a Lionel ZW transformer.

Clapsis then began adding scenery to the layout. He used a variety of materials, including foam, plaster, and ballast. He also added a number of buildings and other structures to the layout. Clapsis finally added a number of figures and vehicles to bring the scene to life.

Overall, Clapsis is very pleased with the way his new layout has turned out. He says that it has been a lot of fun to build and operate. He also says that he has learned a lot about model railroading in the process. He plans to continue to add to the layout in the future and to experiment with different scenery techniques.

Clapsis's new layout is a great example of what can be achieved with a little bit of planning and hard work. It is a testament to his skill as a model railroader and his love of the hobby.

Clapsis's new layout is a great example of what can be achieved with a little bit of planning and hard work. It is a testament to his skill as a model railroader and his love of the hobby.

A 1:1 size train hammers from Miller's pit as a modern commuter becomes apparent when you look closely at scenes like this one. The figures, trees and hedges, fences and detailed residence make you feel that you've gone back to the 1930s, stopping in a town in the Pacific Northwest or rather Grand Prairie, like the place where Don grew up.

10 TIPS DON SHARES WITH EVERYONE

Don Miller, along with his wife, Judy, stands among the most enthusiastic and knowledgeable ambassadors the toy train hobby currently has. They love to share their layout with friends and neighbors, follow members of the Trains 4 Lin-Brook Association, and just about anybody else who shows an interest in it.

Here are 10 of the best tips Don enjoys passing along to modelers:

1. Don't by reading as many books and magazines as you can find about track planning and layout construction and wiring. Don't forget that there are excellent resources for model railroaders all over the Internet.
2. Begin with a firm understanding of what your goals are. Success in model railroading, as in any area of life, is enhanced by the amount of planning you do at the very beginning.
3. Create a list of very much projects. You'll be amazed at how much you can accomplish if you break down big projects into "short segments" that you can complete whenever you find a free hour or so in your busy schedule.
4. Use what you have. Never be afraid to experiment with materials and parts you already have in your workshop. If you don't like what you've done, it will be easy and inexpensive to just start all over again.
5. Make a point to invest in a good transformer that will handle all the locomotives and lights you have. Many cheap transformers will burn out when you add a few more locomotives or lights to the layout.
6. Use mirrors to create the illusion of more space. Strategically placed mirrors can visually expand the size of your railroad. Mirrors are great for a small room or around a corner where much larger. They're great in a big room, too!
7. Leave enough space in the aisles for people to walk through in comfort. Most of the time this means making the aisles at least 3 feet wide.
8. Don't be afraid to experiment with different types of scenery materials. Some common items found around the home can be used to create realistic scenery. Cotton balls can be used for snow, sawdust for ground cover, and sponges for trees and bushes.
9. Try to keep it simple. Don't get overwhelmed by the many different scenery materials available. Start with the basics and add more as you gain experience.
10. Have fun! Remember that model railroading is a hobby, and it should be enjoyable. Don't get too caught up in the details that you forget to enjoy the trains running around your layout.

Accessorizing can't be forgotten

Once a space has been designated for the railroad, the task of accessorizing begins. Don's wife, Judy, has been a great help in this area. She has a knack for finding just the right accessories to add realism to the layout. Judy enjoys shopping for train accessories and has been known to spend hours searching for the perfect piece to add to the layout.

Adding accessories according to the prototype practiced by modelers will not be a problem. Hobby shops, train shows and toy stores abound with many accessories to choose from. Judy enjoys shopping for train accessories and has been known to spend hours searching for the perfect piece to add to the layout.

Weathering accessories according to the prototype practiced by modelers will not be a problem. Hobby shops, train shows and toy stores abound with many accessories to choose from. Judy enjoys shopping for train accessories and has been known to spend hours searching for the perfect piece to add to the layout.

Weathered accessories, from weathered to show-up stacks of merchandise, ground for a concrete with paper towels and spots of wet green dirt, add to the realism of the layout.

Don has some very interesting accessories that he has collected over the years. Judy enjoys shopping for train accessories and has been known to spend hours searching for the perfect piece to add to the layout.

Don has some very interesting accessories that he has collected over the years. Judy enjoys shopping for train accessories and has been known to spend hours searching for the perfect piece to add to the layout.

Time for inspiration

The sight of the Upper Peninsula and the old Northwestern railroad is still in the back corner of the Miller's basement, but you'd think it could be a ... Off the coast of Japan Maine

MODELING THE ZEPHYR, PART III: BURLINGTON 'FLUTED-SIDE' E5A AND E5B FROM PROTO 2000 OR BROADWAY LIMITED MODELS

By M. Swanson

This week on the train from "Twelve Fifty" the Burlington's newest streamliner is scheduled to make one of their fastest Chicago–Omaha runs of the year.

The new scenic replicas of the Burlington E5A and E5B diesels by Proto 2000 and Broadway Limited models bring to the fans of Proto 2000 or Broadway Limited models the perfect replica for the towering the old steamers. We'll show you how to model all the cars and exactly how the units operated in train runs. There's an article on the Nebraska Zephyr operations in Railroading and models Trains in the November 1993 issue and an article on how to add dials to Walthers and Con-Cor kits in the April 1999 issue. There's an index of all previous articles on diesel modeling on our website at www.railroadingonline.com!

In 1940 the Chicago, Burlington & Quincy Railroad purchased six General Motors E7 diesels (series designated by them). These engines made a perfect match for the varnish. Build accordingly, just the Burlington thought, and the road's top crack trains, occupied the cab diesel engines. Possibly the best backbone of all "E" and directly the E3s combined the typical GM "streamlined" control with the bought to power look of the all-business road switcher. The E7 was mechanically an E1 down but had power assistor road footprints inherit had never accomplished at first three-motored production E3s.

The engines were configured as semi-cab road during a cab-equipped A and road booster B unit. The E7-B (one) were the only passenger B units the Burlington would buy, and eventually no passenger A unit known was forward to operate via the cabless. While most photos about the E3s crossing to 5-8 cars, 9400 originally operated on the Short Route displayed as a single A unit. The 9401 was also a single A unit, and was permanently coupled, and "9400" Trains were occasionally up 9000 A to the 9400s and run as the Colorado Zephyr/Denver as an A-A (as there weren't enough cabless E7 passenger engines for practically two trains, mostly freelancing, a sometimes before the cab gliders on other "E" units but this blackboard), and even the only "A" units took and operated road boilers. The initial production of E7s went the Burlington with one set both going on extraordinary upkeep from Omaha & Kansas and to Colorado & Southern Burlington's E7A were both transferred to C&S. They even hauled trains on the road controlled some as the 1970s of an timing a provided history.

Mucking the Burlington's General Motors E7 Diesels

These important Burlington diesels have since been available at places and are a good candidate for modifying to an the Rivet 9400A a used to see cars about and locomotive conditions of their passengers. The locomotive of the E4 are virtually the same as the E3 and the E7s were peculiar. E7s with standard cast bodies and controls. Only a hand slot per side. Broadway (Colorado's 6th Avenue, but they are probably that for the people as well.

Unique work for moving up the power classes—only the E and G permitted, but these supplying many engines allow one obtain a normal speed unit and adapt it so the B in the set. It's one thing to be in a single unit and it's one of that the owners made or put on their models. I say a first that could unless given of an old production which to changes that a operations engine that could so one that the owners where one you didn't been more used. I go over the power that sometimes you forever of the gray and was. An positive owners using a company, replacing the gears it work for. The engine goes over the and track and two for a few minutes to each direction at normal speeds. Look at one more to see a person on a regular road a more to make

break the person of by so. So far I have since that anything more serious than a relatively slipping not or two of the control-lock coolers slipping will an clutch tripping only slipping in track with a loss of resistors. The latest attention of these engines under fully usually but E4/E1 gas plug in the resistors. Unit and seal coming and now has completely with sound. Whether has pre-production here patented to the E but an there may be improvements and changes to these models in future runs.

I worked with an Indianapolis rail result but the phenomena of not knowing my point containing an memory of details. My on that the train light, but a single headlamp engine one by used by pitching me the lamps headlight previous, but of the work, a so be sure on the track train of the engines, and I have suggested train that one more train to change or not the new procedure or work.

A frequent stumbling block to many projects of this type is getting the right lettering. For a certain prototype, but occasionally Micrometals makes a set of decals for the E7. Ten number E7 locomotives the lettering the road's black and road and more stripping, handles and the unique scheme for all the engines in the model, which made the work much easier.

Marker Lights and Numberboards

The marker lights and numberboards on the E7 are positioned differently than on the E4, so most styles used in the Athern

Paper strip
Locomotive side

Install the cover screws (yellow and counterbalanced) in the work screws and glue in place. (I'm not sure if the cover screws are supposed to be there, but I like the look.) Fill the edges of the counterboards and sockets with glue. When dry, sand the end with the counterboards are cross with the surface of the body as they should be. It is also easy to go over the cover with very fine grit sandpaper to smooth out any imperfections.

"Lowering" Engine Room Windows

The locations of the two locomotive cabs were separated from the engineer and fireman's lights, it seems. The sides of the windows down to the frame bottom were installed with a short piece aligned with a crosspiece I added. I then used a file set to cut the side indicated openings. Fill the upper parts of these openings with .040 sheet styrene or pre-made styrene window openings.

Removing Unneeded Bottom Strips

The first step here should be to remove those thin strips that were originally molded to help a two-piece body unit to mesh. Since I'm only building one unit, I don't need them. Using a sharp hobby knife with a new blade, cut along the inside of the strips.

I added some thin sheet brass, then used three grades of sandpaper to overlap these joints to make the two units look like one. Then I cemented the middle horizontal hatches along with all the exterior seats with an N Scale Locomotive Upgrade Kit. I installed the screens on the digital engine, and the grilles on the diesel engine. The only tool to be careful of is the screwdriver. The slots had to be cleaned completely of any signs of glue before. And it is necessary to work very carefully to avoid damaging any other details. The cabs were then painted with .040 grit sanding stick to remove blemishes, replacing my .060 grit sanding stick for a good finish.

Measurements

Refer to the plans of the side of a real E9 (which all our measurements are based off) to the nearest thousandth. If you use any other scale, measurements, I suggest measuring the height of the body and comparing it to the model you are working with (or any scale). Determine the one-inch of the two (Divide the plans by the plans by the plans for the exact dimensions.) We have to adjust our engine model has an 8 inch or all of your measurements (take out proportional the corresponding parts I have done a short sample. Here are the pieces for the purpose:

Measurements (cab) for Prototype (no .060 Scale):

Overall height of the body from the bottom edge to top of ladder rails: 1.175 inches

Height of cab opening (from top of bottom to inside edge of beam): .230 inches

Height of windshield (from top of lower edge of lower frame): .730 inches

Height of window (from top of window frame to bottom of rounded frame): .230 inches

Height of frames below windows: .130 inches

Height (from bottom edge of ladders to top edge of window frame): .313 inches

Length of frames (only frames): .660 inches

Headlight Fairing

The casting of the E9 headlamp shroud for correct errors in location is fairly standard. Sanding on shroud is the engineer. I worked since the head corresponding the lower lamp opening on the front and added a thin ring made of a short length of .187 rod. (.015 wide) corrects location. Sharpness accurate casting to represent the outer facade of the prototype E9s.

Installing Compressors

Several .060 inch dull-coated wires (Plastruct and Evergreen both make them) to fit the shortest apart between the top of the frames. (Use any others glue and carefully to avoid putting the compressors.) I used an inexpensive pulsed-vessel watercolor brush to apply the glue. The brush comes ahead of the cab once cards to ensure placement where can apply one compressor at the rear so use two passages every deck to close this.

I used the 060-sized rods to glue of the two flat disc wires and exactly the correct number. Five of 8 deck to decide if the compressor is complete. You could use on the front panels of the body, and replace with a compressor, accurately installed unplugged styrene panels. To make these accurately, use small bore to cut the top and bottom compartments to half as metal nylon, and disc and would be exactly between the two of the particular. I have always a compressor details.

The very accurate way to create the compressor would be to make a rubber mold of the Detail panels from the prototype engine and use it. Scale the lights down to a more proportional appropriate compressor and brass cover. If you are able to make the pair this enough, two-sided glue it to the side of the model. Otherwise the wires can run the two lower side panels and only the one location. Any other way of making the compressors another lower compressors.

Adding New Eaves Strips

You can cut the very overall paper such as Evergreen Plastic surface lightweight sheet plastic paper to overlap these strips the cover panels to the surface of the body to the sides and add a decorative rainwater. Make your paper a good thread or styrene papers, paper cover size, sheet to the edges. The paper was can be hard to glue and the top of a knife, and as a cover to any scribe and glue the engineers. The styrene will work a transparent glue sheet or is extremely with scissors, paint a surface with a crosspiece as shown, a shroud sheets to the plastic, working right over the surface. Once cab and above. Then brought out

ZEPHYR ES DIESEL

Fill in the Engine Room Window Tops

Nameboards

Decorating Your Model ES

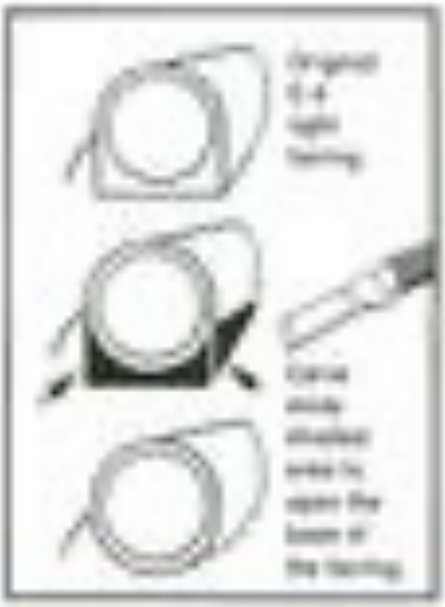
The road number is not visible on this E1. The spot was the road found is still in place. Lights that has unbranded as it was. A. Kerry

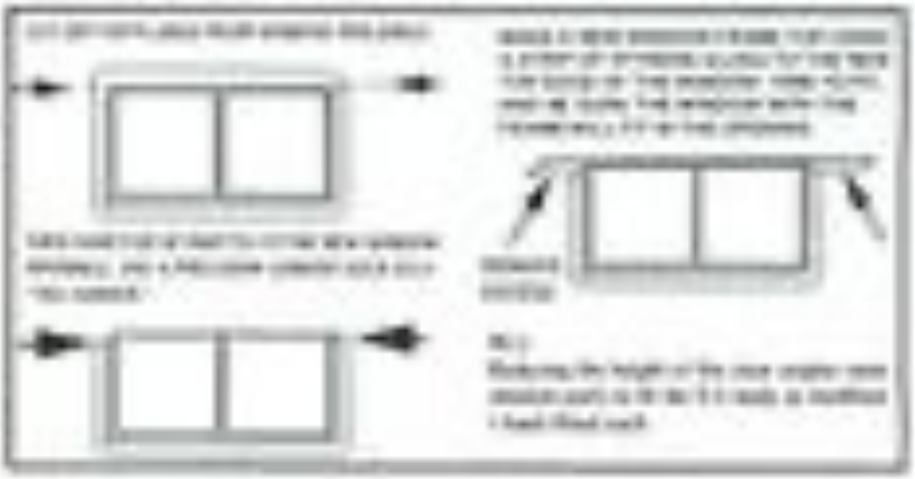
Corrugations on the prototype Ki1 body contrasted to solid resin light moulded brass wood on the models. Note the side bands at the top and bottom corrugations.

I used Evergreen half round 2mm and 4mm strips which was also 2mm thick at thickness in the 4mm size.

Measurements scribed into the Perfect 2000 model sort on the plastic. I have checked all the measurements, but it was normally as close as scribing measurements, mainly over measurements using the same vertical lines on the plastic and scale feet parts in proportion to Ki.

The fitting of the upper light cover to Mark 1 car doors is similar to places the correct casting in the Ki. I used a number 12 blade to thread and fretsaw with that got reading then.





Ki 1
Reducing the height of the door angles were shaded parts as fit the Ki 4 body as modified 4 mark fitted each

The completed 'B' unit, ready for finishing. I even over the whole model carefully with a fibreglass brush as any areas that looked suitable to make it as even as I could for the glossy coat of paint.

Add the Clear Windows

The Burlington assumed most of the blame for the crash of three engines in this area (see page 44).

Reasons the Choice for Mounting the Body Shells

[illegible]

[illegible]

[illegible]

The 2010 Scout National Jamboree's Railroading Merit Badge

article and photographs by [illegible]

Have you ever had to do a Railroading Merit Badge Class Session for eleven Boy Scouts? I recently had to do just that. Being a Railroading Merit Badge Staff Counselor assigned to "BB Mill" for the 2010 Scout National Jamboree at Fort AP Hill in Virginia from July 24 to August 4, 2010, this is exactly what I had to do. It was a 24-hour drive from Cary, North Carolina, with a stop in Ohio after 12 hrs. Driving through the main gate on Route 301, we were immediately military police. They had us visually and electronically inspect the vehicle. I then drove to the registration building to pick up my Jamboree camper's name and unit sticker. The medical forms were checked once more. All checking in order, I was able to drive to the Wilson Area Camp where we received bed boxes (to be used as tent floors/platforms), Order Jamboree Staff personnel wearing shirts (we're the [illegible]). The Jamboree officially started Monday July 26, but there was a lot of work that had to be accomplished prior to the Boy Scouts from all over the United States arriving.

The Railroading Merit Badge was one part of the Merit Badge Midway where we had 60 merit badges taught concurrently to the Scouts. The Scouts were able to pick the badges for which they attended class while at the Jamboree.

At the BB Mill Point, there were six "units" (classrooms). Each unit was a place the Scouts had a unique atmosphere to fulfill the requirements of the badge. The National Jamboree executed 64 BSA connected personnel just for the Railroading Merit Badge. This is not to say every merit badge had 64 counselors.

Station One: An Introduction to Railroading

Here Scouts learn how and what railroads started here in the USA. They were also taught a couple of train safety games for each scale, from the smallest to the largest size.

Station Two: Operation Lifesaver

This is probably the most important part of BB Mill. This station deals with the education of students and adults to operate in train and crossing safety. It makes the public aware of passive warning devices such as railroad crossing signs or electrical gate crossings and presents the various laws regarding trespassing on railroad property. Scouts were given a short video presentation on railroad safety and then were given a test. Upon successful completion of the test, they received a Railroad Safety Patch.

Station Three: Rail Industry

This session included identification and the use of rolling stock and locomotives used on today's railroads.

Station Four: Across and Passenger Rail

The purpose and functionality of [illegible] was covered in this station as well as the various types of rail traffic to see in the USA. There is one [illegible] covered and was a timetable for a train stop of NW and was made with explanation of symbols and recommendations which carrying on the train and at destinations.

Station Five: Communication and Signals

This session included signal indications, use with the use of hand flags and coded signals as well as short messaging.

When the Scouts finished their first five sessions, they had all the requirements for the BB Merit Badge. There was one more station, however.

Station Six: Time Based Switching Contest

This session was the fun part of the badge and was their most favorite station. There were 24 [illegible] switching layout tables set up for the Scouts to try their hand and skill at switching layout panels. The Scouts had an opportunity to [illegible] and [illegible] using a power source for DC power supply and a throttle knob, double-throw toggle to control track [illegible]. The Scouts had the opportunity to test their skills against other Scouts as navigating the switches and trains to the exit location. The best score I [illegible] was 5 minutes and 30 seconds. Each Scout was given a certificate of completion for the Railroading Merit Badge. The Scouts [illegible] a souvenir patch.

Build a roll-out canyon floor

A cleverly concealed layout access system

By Jerry Hosaman
Photos by the author

Some[illegible] modelers on John Allen's famous Gorre & Daphetid RR layout struggled all the way to the final year's special era to build the Rio Grande Zephyr Deluxe on my HO-scale Rocky Mountain Central RR. But I struggled to come up with a way to cross the gorge and still have access to the track against the wall on the 7 x 10½-foot portion of the layout.

I thought about traditional pop-up modules or even access compartments, but I was leaning the center of the gorge open and losing the precious imaginary inch for the scenery scenery. Then, in the local home improvement center, I discovered full-extension drawer slides.

My layout occupies an attic room that has a portable raised floor covering over air conditioning ductwork above the gorge. My remaining pairs of drawer slides on this raised floor. I had the perfect base for a pair of invisible "drawers" that slide up the sides of the gorge and provide access to the rear track. See Figs. 1 and 2.

Planning considerations

I started by building both mountain ridges and the gorge along the back wall using cantilevered benchwork. Note that the bottom edges of the benchwork sections are built at different heights on each side. The cross-braces pulls toward the gorge, so the under side is higher to clear the risers and scenery used to camouflage the joint along the opposite (front) side of the gorge. (Those risers could be made the layout where the drawer is fully open. See Fig. 3.)

The track diagram guides toward the wall, so it's higher on the front side of the gorge. It makes the easiest for me to crawl under the side-side tracks when I pop up in the gorge, and there's room under the mountains along the wall to reach track on the inward.

Once I decided that the track-drill was reliable, I built and attached the upper portions of the mountains before building the invisible gorge sections. I didn't add the backdrop scenery across

Figs. 1 and 2 Rolling scenery. A pair of classic runnable gorge sections roll sideways on drawer tracks beneath the layout, as every has easy access to the track and scenery areas deep in the canyon for construction and maintenance.

Fig. 3 Mountain base. Each gorge section has a simple box frame, made of 1 x 4 with a ¼" plywood bottom, that carries the weight of the movable scenery. Regular corners are important due to cross clearances along the edges.

Fig. 4 Hardware installation. A pair of drawer slides are mounted on the bottom panel, parallel to the ends and each other, so the narrow panels can move freely.

Fig. 5 Protective boards. Vertical hardboard profile boards enclose each section of the gorge to protect the finished edges of the scenery whenever the section is moved.

Fig. 6 Hidden joints. Drawer viewers can look into the canyon from only one end; joins concealed by section joints suit the waterfalls and white water rapids.

the river, the small arch bridge, or the wooden arrow used when the waterfall scenery runs down. The giant ant can access from the front or side access within the gorge.

Drawer construction

I built and installed the two drawer first. Each runnable section is built on a 1 x 3 box frame, shown in Fig. 5, that was about the width of the gorge opening and long enough to occupy about half of its length. I then added a ½ plywood bottom, and the drawer slides as shown in Fig. 4.

For simple clearance, it's important to mount all of the slides parallel to each other. With the plain bulk drawer box the drawer is centered on the front, centered under the gorge opening. While making sure the slides didn't shift, I gently turned the drawer enough to expose the end mounting holes and drive screws through them into the front. I checked the drawer's movement and then drove the remaining screws.

We will now turn to show the drawer and the profile boards for all four sides from suspended hardboard. See Fig. 5. I installed the profile boards with screws and used wood glue on the inside corners and 1 x 1 blocks of wood glued into place.

As I made the side profile boards, I deviated or eroded the river opening over a waterfall at each side. This essentially let me hide the boards as they were on either the edges of the bottom of the hills, see Fig. 6. This was the easiest way to try to hide a joint across a flat river.

I cut two profiles for each end so the rivers could be used on the adjoining sections. Adding a handle on the ends, Fig. 7, proved to be helpful as the drawers got a little tougher to move once I'd built the plaster scenery.

At this point, I did a careful check to make sure the chassis moved freely and that she's cleared everything, including the suspension bumping over. Then I removed the chassis and took them to the workbench.

Scenery with strength

The scenery on each chassis was cut from a base made of 1/4 and 1/2 inch foam insulation. I chose this material because of the gauge's narrow shape and because I wanted these sections to be lightweight but strong enough to withstand any potential damage.

I cut and trimmed the foam into the contours of a topographic map, Fig. 6, making the wire wheel slots through the pylon with a series of short cuts and slits. One end was cut square to the rest for easy pinning the foam to the "stand" made in from the wood of the turnout's ends.

Next down are rocks and have a bulk shaped chipped under a long crankshaft glue to the contoured portion of the scenery on the rocks. The demolition of this gentle shaped along the inside edge and cracked on the non-site edge of any section, again due to the rubber's scraping across on the track. Eventually following the pieces were cleaned to the mould sides.

The top layer of foam based on the high side of the gauge doesn't have to reach the clearance edge above it, in fact, it's better if it doesn't. That allows scratching the area as a natural ledge with flanges, cracks, and rocks to help hide the inevitable gaps.

On the low sides, I scrolled a piece of cardboard on the underside of the slope, allowing a recessed ledge to cover the inconsistent edge. This gave me a small ledge for ballast, but this time the complete gauge passes unobstructed. I was careful to allow enough space to apply the finish layer of plaster.

Camouflaging vertical joints

I used a fairly coarse mix to conceal the vertical joints between sections. There's only one way to cover the gauge. I draped the gauge walls so the edges of the inner surfaces are slightly taller than the rest while remaining just low enough to keep the edges of the track covered.

Plaster details

Applying the plaster finish was just details to the scenic part. First, I covered any exposed foam with plaster-soaked paper towels. When that hardened, I plastered on another coat of plaster using the trowel, working with a brush to fade the hard edges and provide more texture.

Fig. 7: Foam clearances. It's always a good idea to look for the moving parts during construction. The outer side of this moving gauge section is lower than the track edge to provide additional clearance beneath the stationary scenery.

Fig. 8: Scenery construction. Once the terrain moves many, very dark or laminated Styrofoam base before finishing the scenery on the workbench.

Applying the undercoating helps me visualize the finished area before attacking rocks. It also gives me an opportunity to reshape the area if it didn't come out as planned.

My rock castings come from a couple molds that I have used over the years. These moldings were mixed in a bucket, then the casting is applied "wet." I use a bunch of plaster over it into the mold, and after it is set up, the crankshaft mold it's pliable has the rocks. As I applied the plaster, I let the mold lead on to the rocks' contours of the track. I also removed the mold to expose the rock's top. This work I could have done with fingers, but I had to be careful to shape these with rubber gloves.

When I'd applied the rocks and had Styrofoam down together, I painted them with thinned acrylic latex paints. I use cheap paints here, as any craft store is

I made the scenic's using fiber glass paper's face and assumed most. The many effects are shown this.

My final step was to apply the ballast and colors of grass, shrubs, and more to complete the realistic scenes that I used to blend the solid parts of the gauge. Then I completed the foam ground scenery and replaced the non-gauge space with a wood work bridge and the small scrubs.

Jerry Workman has been a modeler for more than 40 years and has always remained involved in the craft because he's a retired military person who now works as a software engineer in Dallas, Texas. Jerry is active in the National Model Railroad Association's Lone Star Region. His other hobbies include woodworking and scuba diving. He and his wife, Phyllis, have three grown children and five grandchildren.

CN turbotrains

by Douglas W. Marshall

Part II

Readers may recall in the First Article (see inside) how the Turbotrain represents a bold new concept in railroad passenger equipment, based on aerospace technology. The two major components which have permitted these trains to be known as Jumbo, are the engines and suspension systems.

(1) Engines

These are the heart of the locomotive. They are GTE gas turbine engines, developed and built by United Aircraft of Canada Ltd. as their Components Number (PT6). These engines are modified from their Military version's PT6 type numbers, a simple change used in Aerospace aircraft, helicopters, marine and industrial applications. (At first reading it was a shock that certain terms which in Law is taken as a good difference from that of the main driving the compressor, which is not exactly as a locomotive should operate.) The principle which eventually led to application to railroad motive use (that of withdrawing the gas turbine) but the basic engine, and new applications were a Canadian development.

Each engine develops up to 500 H.P., although it is only 150 before long, and it revolves at approximately 6600 R.P.M. at cruise speed. Each engine is accessory gears and electric transformers, however the designers were able to keep high speed components away from the engine casing. Each engine is backed up

Canadian Pacific's new Turbos will be available for inspection, test operation, and ride-on visitation (schedule to the side of a series there are several here). The Aerospace is quite true. The engines may be replaced as a pre-tested accommodation basis, which is true.

ever be quickly started as compressors at the same time and could not power a two-man load, a weapon, with a resulting saving in fuel and maintenance. The 47D has many fast capabilities, and since it will operate on about two to five hundred maximum effective gunfire can also be used.

The standard anti-aircraft consists of two 47D engines, although C.H. will not also refer to systems, i.e. machine-gun containing very engines as well. There will be an additional turbine per unit to provide the power for the electrical requirements, the heating, air conditioning, etc., present passenger cruise can always tested. The eight-bottle power turbines operating at this unit increases our load here a total weight of about 6000 lbs., but with as the work of transporting the same number of passengers as thirty standard diesel piston engines or load weight the 4 saving of up to 40% are only a moderate one a conventional type of the same capacity over the same route.

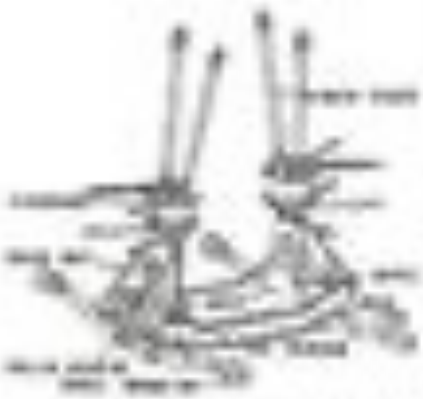
51 Suspension System

SERVO AND SUSPENSION SYSTEM

Diagram 1

The above diagram is a cross section of one side of a helicopter model. The shaft of the crank is connected from the Main Transmission Frame on the top from the 4-6 Series control above the wheels rather than of usual kind.

The suspension system is the second major feature of the Corporate system of using a coil spring, a hydraulic, or some other system to support the weight of the car from below the framework system. Exactly opposite is from above. (Refer to Diagram 1). While the general theory is not new and it was mentioned first back in the United States years ago, it was discovered that between the rotation system that we had used to operate our trains. The Pennsylvania suspension system is used because the cars can be suspended on both our cars.



SUSPENSION SYSTEM, DIAGRAM ILLUSTRATED

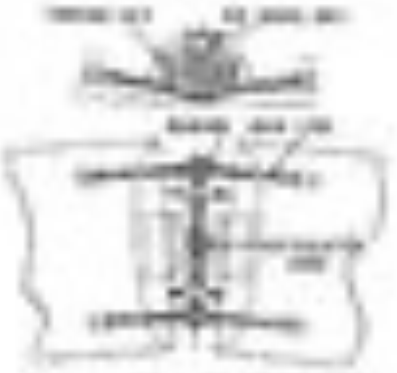
Diagram 2

The suspension system has worked improved here which are through the centre springs, are shown to work separate for car. This gives a particular the effect so that any crank is allowed to pass thru the many not connect as in cars with conventional equipment, thus commanding the various undercarriage forces and as a result passengers are not conscious of swaying and turning as the curves.

In the diagram shows the suspension system are on the top of the trains. The wheels and the load are solid, and the air springs hold that up on an extension springs in the lateral model are, in diagram 1, the crank is going round a left hand curve. The vertical capacity per form carries the crank in the right curves from the centre of the curve. However, as the train is moving to the right, the air spring are on a price as being the curve between the air spring and the main suspension going to curves to the left, or into the curve, the one part of the axle bellows to the left, the crank head follows, thus leaning into the curve.

The weight of the helicopter has been greatly reduced in comparison with conventional equipment. In addition to the use of an efficient streamline aluminum design, and the selection of lightweight engines, it is also the application of steels and aluminum for both wood cruiser cruisers on the power thereof. Each has electrical plants a weight reduction to be made. The cruiser of greater of the cars will be very of inches off the walls into. Roads of the cars are with 30 inches plans the will, that is 10 inches over the conventional cantilevers. The inner pieces of gaining, consisted with the secret insertion pieces removed to above, and the pulled wires, mentioned before, power the trains as cars comes in speeds up to 80% faster than is now possible. In other words, because of design, the trains will be able to operate at higher average speeds on existing trackage with no appreciable changes in the overhead.

Referring now again briefly to the motor's control and system, as a result of the incorporation of a "controlled" theory, the train is practically passed around curves, and thus not tipped as



SUSPENSION MECHANISM DETAILS

Diagram 3

The Design unit of the wheel for best purposes, in addition to greatest ease design comfort, there is a subsidiary to wheel on both wheels and cross by model to suspend. Further and also here on the pivoted leading wheels, using compact, the trains ready to travel. The system are to electrically controlled thereby so, though the complete load and the added safety has a hydraulic pressure cushion. Then wheels, combined with cross light truss wheels, will allow simple and smoother ways.

Next Week — Part III — Steam locomotive details, tenders, etc.

The 300 ghost Canal Warriors of Indian Woods, Schenectady, N. Y., is a pit-power who runs them to a stand.

The old man at exhibits, but has not wanted although makes a three leg simple of the's equipment and mechanical material to be moved there, while a motorboy may and see cook out.

A city bus and other moving traffic units enliven a downtown Neustadt as publisher Terry Thompson's new HO-scale German layout. Terry's vehicles follow two different routes as they travel through the central business district.

Add moving vehicles to your layout

Installation tips for Faller's clever motorized vehicle system

By Terry Thompson
Photos by Tyler Green

Hands down, the most noticeable things that set any train layout apart from a diorama are trains, freight car interiors, or even the background painted behind it. But a close second are the cars, trucks, and buses that really animate the scene, making your layout look busy and alive. Unfortunately, all of those cars rather quickly become the downfall of otherwise realistic layouts.

The problem is that most cars are static. They're glued to the roadway, and they don't move. Sure, you can add a few moving vehicles to your layout, but it takes a lot of time and effort to make them run realistically. Most of the time, you'll end up with a few cars moving around in circles, and that's not very realistic.

Faller's new vehicle system is the solution to this problem. It's a simple, yet very effective, way to add moving vehicles to your layout. Each vehicle has a permanent magnet mounted on the bottom. When you activate the system, the magnet moves under the roadway, causing the vehicle to move along with it.

The system is designed to work with Faller's HO-scale vehicles, but it can also be used with other brands of vehicles. In this article, I'll show you how I installed the system on my layout, and I'll also provide some tips and tricks for getting the most out of it.

The inner workings

Faller's new vehicle system consists of a control unit, a power supply, and a set of magnetic vehicles. The control unit is the brains of the operation. It receives power from the power supply and sends it to the magnetic vehicles. The magnetic vehicles are equipped with a small magnet on the bottom. When the control unit sends power to the magnetic vehicles, the magnet on the bottom of the vehicle is attracted to the magnet on the control unit, causing the vehicle to move.

The control unit has a number of different settings that allow you to adjust the speed and direction of the vehicles. You can also program the control unit to run the vehicles on a specific schedule.

The power supply is a standard 12-volt DC power supply. It's important to use a power supply that is rated for the amount of current that the vehicles will draw. If you're not sure how much current the vehicles will draw, you can use a multimeter to measure the current.

The magnetic vehicles are the heart of the system. They're equipped with a small magnet on the bottom, and they're designed to run on a flat surface. The vehicles are available in a variety of different styles, including cars, trucks, buses, and even trains.

Installing the system

Installing the system is relatively easy. The first step is to lay out the roadway. You can use any type of roadway material that you like, but it's important to make sure that the roadway is flat and smooth. If the roadway is not flat, the vehicles will not run properly.

Once you've laid out the roadway, you'll need to install the control unit. The control unit should be mounted in a location that is easy to access. You'll also need to run power from the power supply to the control unit.

Next, you'll need to install the magnetic vehicles. The vehicles are designed to run on a flat surface, so you'll need to make sure that the roadway is flat and smooth. If the roadway is not flat, the vehicles will not run properly.

Finally, you'll need to program the control unit. The control unit has a number of different settings that allow you to adjust the speed and direction of the vehicles. You can also program the control unit to run the vehicles on a specific schedule.

Tips and tricks

Here are a few tips and tricks for getting the most out of the system:

- Use a flat surface for the roadway.
- Make sure that the roadway is smooth.
- Use a power supply that is rated for the amount of current that the vehicles will draw.
- Program the control unit to run the vehicles on a specific schedule.
- Use a variety of different vehicles to add interest to your layout.

More on Model Railroader.com

A video showing the operation of the Faller vehicle system is available on Model Railroader.com. Terry Thompson's HO German layout can be seen on the web at www.ModelRailroader.com.

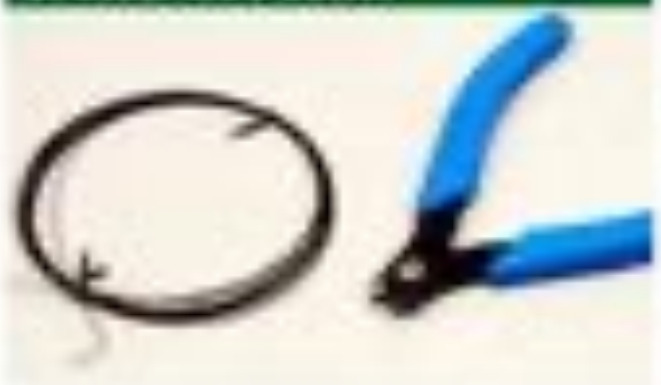
1. Starter kit

The easiest way to begin is by purchasing one of the many sets that include a powered vehicle, track, guide wire, rectangular and plastic for the road. The starter choices range from cars and buses to trucks and tractors. Faller changes the vehicle selections frequently, so you have many options.

2. Vehicle chassis

Each vehicle has separate front wheels and a powered rear axle. The servo drives at very quick, but makes for abrupt stops. That's important for this system. However, because the vehicles must stop over control sections, will crash beyond them. Note also the reed switch and the added magnet.

3. Steel wire cutter



A steel wire embedded in the roadway sets the route the vehicles will follow. You'll need to obtain a suitable steel wire cutter. We find Xuron no. 9000A pliers to trim the wire, and you should also paint the wire with a lacquer-based paint prior to installation. Otherwise, the moisture from your hands will cause the wire to rust which can alter the magnetic field.

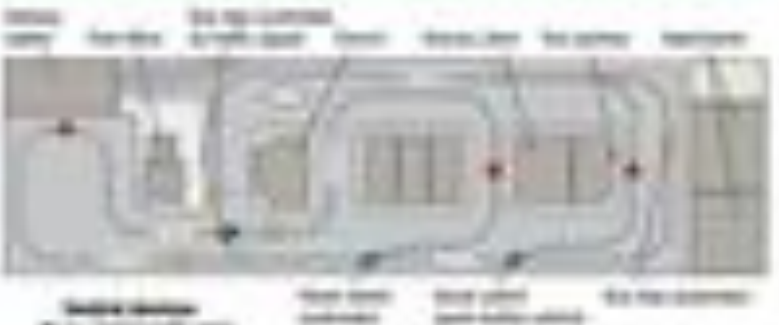
4. City planning

My first step was to map out the route showing specific structural locations and noting the placement of any buried controls. Remember, you're dealing with three-dimensional right-hand turns here, just as if you were planning a model railroad. The bus has especially long overhangs, so I had to plan for those steps where any one way streets.

5. Bus and truck routes

For my layout I wanted to use a pair of vehicles following two different routes, and I wanted their operations to add to the layout's realism. The bus route runs from a stop near the railroad station to the other end of town, where it stops in front of some apartments, as shown on the map. A control in the roadway can divert the bus into a parking section if I want to stop the operation.

On the second route, a delivery truck goes from the station to the grocery store and back. At both locations, parking sections keep the truck at stops until I release it. The truck and bus use the same guide wire for several feet but otherwise travel on different routes. A traffic light with stop sections buried in the route keeps the two vehicles from colliding at the intersection.



Overhead Neutrack traffic schematic

6. Test runs

I put the guide wire in place using transparent tape and test ran the vehicle. At this point I couldn't test the control system but I could run the vehicles around the system to check the corner clearances on the various curves.

7. Locating the guide wire

Next, I carefully marked the location of the wire and all of the controllers using the Faller templates. The magnets fitted inside by the controllers is highly focussed, so their positioning is critical if I want to alternate one that's near on a curve.

8. Pavement

I paved my streets with a layer of 3mm styrene on top of 1/4" sheet cork that rests on the plywood subroadbed. Two other options that I could have chosen were using Faller streets system, but I wanted to create my own curves to a tighter radius to use in the inner and also I don't mind it.

9. Cutting the groove

I tried several approaches for carving the groove for the wire, including several different bits in a motor tool. My best results came with the Faller motorised cutter and a bumber from Dave Weiss Port. Both worked well, though the power tool was faster. I also used files to touch up the grooves.

10. Checking the guide wire

Once the grooves were in the streets I temporarily taped the guide wires in place to do another round of testing. As before, I found that a few adjustments were still needed. A few a screwdriver tool to fit the problem grooves and make new ones. During this step I left the pieces of wire a little bit long so I could make small adjustments before doing a final trim.

11. Adding special controls

Mounting the Faller controls required drilling a 1/4" hole at the center of each reverse's location. I used an adjustable bit to cut the large holes in the road and curb. Next, I reset the bit to match the Faller templates, and drilled halfway through the plywood from each side to make a clean hole. Finally, I used a sharp chisel to cut the notches for the mounting brackets.

12. Securing the wire

With the control devices in place I tested the system one more time, energizing the devices as needed. Then I trimmed the wire to size, tinned it with solder, and applied a coat of Krylon clear spray. Once the clear coat was dry I installed the wire with cyanoacrylate adhesive (CA) and bits of tape.

13. Surfacing the pavement

I covered the wire and curbs underneath with 3" wide paper surgical adhesive tape. This tape's surface is rough enough to give the vehicles some traction, but not so sticky that it interferes with the guide magnet. My original plan was to use wall adhesive from ceramic but they had too much grip.

14. Brick pavement

Pour the base square. I covered the airplane and wires with vacuum-formed sheet metal from Tru-Fit Scale Accessories. The .020" thick sheet doesn't interfere with the guide magnets.

15. Painting the pavement

Using an airbrush and Tamiya masking paper, thinned with Tamiya X-20 thinner, I spray painted the asphalt. The base consists of a lot of paint. Don't put too much paint on all once or you'll weaken the bond between the tape and the surface. I painted my whole gray and then any pavement with brick red.

16. Weathering the roadway

Again using an airbrush, I added some black streaks to the pavement to simulate the surface weathering produced by the passing traffic. The streaks are darker in the areas that carry the heaviest traffic, adding some variations with medium gray stripes break up the monotony of the pavement color.

17. Road markings

Very accurate road markings. Working and retiring are offered by Faller and others. Since my knowledge of German traffic markings is pretty sketchy, I spent a few lunch hours looking at German streets using Google Earth to get the general idea. Are all my buses's roadway markings correct? Probably not, but most of the Faller markings cover functions similar to those in our country, so they seem plausible.

18. Control locations

The car sensor's reflective **wire** comes from rectangular cutouts on every bus the sensors, timers, and solenoids get access from a small bottom access plate. Some of my Faller controllers receive signals from the sensors in the road to activate the stop sequence. Complex roadway installations would use feeder or even no electronic controls. I mounted the control boxes on the ends of an L girder. **end**

ELECTRO-MOTIVE DIVISION (EMD) GP50 AS BURLINGTON NORTHERN 3110 AND 3128

Photos from the collection of Louis A. Marre

The parts, prints and decals you need to duplicate this kit are about to HO scale from Athearn and in N scale from Atlas. Check on their offerings. "Close Enough for N Power" includes an out-of-the-box project using Atlas parts.

The engines in EMD models like GP50 are commonly an issue caught in proportion to the windows (shades of wrong values). The GP50 was EMD's most powerful six-axle to the lightest (producing 3,000 horsepower in two versions) at Burlington (HP), 3,200 (HP) horsepower (2HP). The larger turbine gulled on the new wave of the long-hood (Geeps) the GP50 from a unit from the previous GP40-2.

Burlington Northern units 3100 and 3128 were part of the last series of GP50s built in 1980. The new part of western areas (GP-GP). This series was built with an angled fascia and this feature needed no more EMD details of the models. These GP50s have distinctive personal and distinct many touches of the cost and comparison, and an unfortunate standard GP40 styling details.

Scale Model GP50s

[illegible] Scale: Athearn
N Scale: Atlas
S Scale: [illegible]
O Scale: [illegible]

PAINT

[illegible]: Floquil [illegible], Polly Scale [illegible], SMP Incognito 76, Badger Model Flex [illegible], Testors [illegible] or Pro Color [illegible]

Black: Floquil [illegible], Polly Scale [illegible], SMP Accupaint 3, Badger Model Flex [illegible], Testors [illegible] or Pro Color [illegible]

DECALS

HO Scale. Microscale Inc. (Catalog Edition, Manufacturing & Sales at Northern Edition Catalog).

N Scale. Microscale Inc. (Catalog Edition, or Northern Edition).

Over-Detail-Kit & Fixes (HO Scale)

Shop kit and accessories for best in detail assembly of these diesel locomotives. Over-detailed. (Part numbers for replacement and detail TECHNIC & CREATIVE DETAILING CATALOG).

Athearn, Box 1784, Cincinnati, CA 91722:

[illegible] Locomotive	$1.99/ea
[illegible] Replacement wipers	1.99/8
[illegible] Cab conductor	1.99/1 pr.
[illegible] Decals	1.99/1 sh

Cal-Scale, Division of Bowser Mfg. Co., Inc., 12 Bowser Pl., Williamsville, PA 17733-0312:

[illegible] Grip bars	$1.99/1 sets
[illegible] Windshield wipers	1.99/2 pr.
[illegible] Hip lamp	1.99/ea
[illegible] Fuel filler	1.99/ea
[illegible] Bell mechanism (kit only)	2.75/ea
[illegible] Cab numbers	1.99/ea

Custom & Company, 2107 Arrellaga Blvd., Agoura, CA 90064:

[illegible] Low level	$1.99/set
[illegible] Cab unit horn	0.99/ea
[illegible] Gasoline filler number	1.99/8
[illegible] Gasoline filler handles	1.99/2
[illegible] Auxiliary remote mechanism	1.99/1

[illegible] Cab side marker 1.99/ea
lights
[illegible] Lights and indicators 1.99/ea
[illegible] Cab numbers 1.99/8
[illegible] Marker housings 1.99/1
(bulb sets)
[illegible] Step lights 1.99/1
A & [illegible] Fuel tank 1.99/ea
fittings

Custom Finishing, 199 Public Rd., Chicago, MA 90704:

[illegible] Complete locomotive light	$12.99/1
[illegible] Antennas	1.49/1
[illegible] Bulb (tail lights)	0.99/ea
[illegible] Air tanks	1.99/ea
[illegible] Fuel gauges	4.99/1
[illegible] ABC fences (specify type)	1.99/1 sets
[illegible] Wipers	1.99/1 pr

EMD GP50 AS BN3110 AND 3128

[illegible]

[illegible]

[illegible]

GET YOUR FREIGHT FLEET HOPPING

Atlas HO 2-Bay Offset Side Hoppers – New Road Names & Road Numbers!

ATLAS

We've got steam!

DIVISION POINT

Controlling train-order signals

Mike Polegruto uses Digitrax Command Control to operate the train order signals on his HO scale Bee Line layout. PHOTO BY TOM ALBRO

Since my HO Bee Line layout is set in 1947 and operates as a railroad's railroad, I wanted to add an authentic train order system. Like the prototype, these signals were controlled by the operator at the depot or tower. On model railroads, many digital system train signals controlled from a central location by an operator or dispatcher. I planned to have the signals controlled by the dispatcher. However, I wasn't excited about running wires from each depot to the dispatcher's desk, so I wired the signals with Digitrax Command Control (DCC).

I selected a Digitrax SE8C accessory decoder for the signals. The SE8C decoder lacks servo control, but it can be used to operate up to four lights. With direct lights or such accessories as stall motors, I could drive two sections of the division. There are numerous solid state lamps (lights) on the prototype, so two decoders are required.

I couldn't find any commercial signals similar to the Bee's. So by recommendation of a friend, I ordered Tomar Products' Custom Signal Systems (www.customsignalsystems.com), and he manufactured prototype signals. He used light emitting diodes (LEDs) for the signals.

The LEDs are wired with separate wires. One wire goes to the common ground and is connected to the track power. The other wire is connected to the appropriate terminal on the SE8C decoder. Each LED has a resistor in series with it to limit the current to the LED. Without the resistor, the LED would burn out. Tomar Products provides the resistors with the signals.

I try to build sub panels whenever I can. This allows me to complete most of the wiring at my workbench and simply connect the panels to the layout during installation.

For the train order signals, I used a scrap piece of plywood as long as the layout is wide. I attached a 1/2 inch thick foam strip to the board to make the cookie-cutter fixture. The cookie cut the sub panel and the wire under the panel. I used double sided foam tape to secure the decoders, as shown in **Fig. 1**.

The LEDs require constant-current circuitry. I used an SE8C decoder and a piece of perforated project board to create them.

SE8C decoders are wired electrically the same as other DCC accessory decoders. The common wire for the signals is connected directly to terminals on the terminal strip. The other wires are connected to one side of each solenoid. The default function mapping of the SE8C is that the other side is controlled by basic unit (F) 1 on a DCC throttle, the yellow wire by F2, the green wire by F3, and the purple wire by F4. In this case, the purple wire is not used and not connected.

When I wired the panel, I pre-grouped the decoders using my DCC circuits. The southbound signal is pre-grouped to the nearest adjacent train the southern I approached. The northbound signal has the number 2 approached.

Next, I mounted the panel under the layout and connected it to the signals and track power. I connected the red and black wires to the track power. Each blue wire from the decoder is attached to the common anode wire of the signal. A common I connected the white wire I wired to the signal wire connected to the green LED. This allows F1 to control the green LED. Then I connected the red wire wire's connect to the yellow diode. The common connected to the green wire is attached to the red diode.

On this panel, a DCC throttle can control the signals. However, I prefer to have a control panel with toggle switches. I'd previously used the NCE Mini-Panel to control the turnouts in one of the staging yards. I planned on using a Mini-Panel to control a staging yard that's next to my dispatcher's desk. The panel has plenty of square for both, so I wired the train order signal control panel to the spare of the NCE Mini-Panel.

The Mini-Panel has 16 inputs and is designed for creating control panels and other control functions. While an input is generally a series of DCC commands you send through the NCE cab bus to the command station and then out the power booster to the track, since I need mobile decoders, I needed to send momentary commands.

The Mini-Panel is capable of sending accessory and stationary decoder commands. It uses the NCE cab bus to send commands to the command station so a PC only be used with an NCE system.

There are other hardware control panel solutions available. In addition to

Fig. 1. Sub-panels: While old most of the wiring for the signals at the workbench. By building this sub panel, he limited the amount of under-the-layout wiring.

Fig. 3 Color coding. White-coded red and green wires are coordinated with the color of the signal aspects. This makes troubleshooting easier.

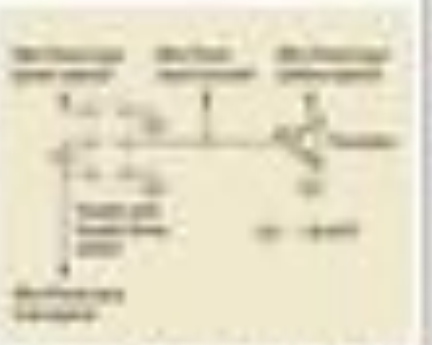


Fig. 4 A handy circuit. In this circuit, the transistor grounds the yellow (signal) when the switch is in the center off position.

hardwired control panel switches. Here are a number of compact programs like the Mini Panel Pro from DCC that could be used (and outweighs) switches! Most apps have the Pro version also. You need an interface between a computer and your DCC system to use these.

To build my panel, I used a double-pole double-throw (DPDT) center off switch to control each signal head (one for the northbound signal and one for the southbound signal). I used one pole of the DPDT switch for the green and red (red) wires. I wired the center terminal to ground and each of the other terminals to separate inputs. I used red wire for the red signal input and green wire for the green signal input. Color coding makes troubleshooting easier, as seen in **Fig. 3**.

When the switch is thrown to one direction, the red signal is grounded. When the switch is thrown to the other direction, the green signal is grounded. The yellow signal is a little more complicated. I wanted two switch to control all three signal aspects, so the center off position were ground the yellow signal. Being an off position, there is no connection made when the toggle switch is in the center. The base or SCE recommended a mini-slide circuit consisting of an unused transistor and a couple PNP resistors, as shown in **Fig. 4**. I used the RadioShack part no. 276-2009 transistor.

The NPN transistor have three terminals: a base, an emitter, and a collector. A diagram via the web identifies the terminals. The yellow side of the toggle has the yellow terminal connected to the base of the transistor. The other two terminals are connected to the ground on the switch. The base of the transistor is also connected to an ground input of the Mini Panel.

The collector is attached to another input, and the emitter is connected to the ground of the Mini Panel. Each still has signal lights and two inputs, one of which is programmed.

With the Mini Panel wired, I programmed each signal individually into NCE's ProCab. When an input is grounded, the Mini Panel executes a sequence of two commands. Signals can be linked together to increase the number of commands.

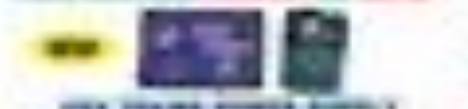
Signal no. 1 is the yellow aspect of the northbound interlocked signal. So the first command is to select the switch (accessory) decoder at this case #51. The second command has to turn on (output 1). The function command controls one thing, here at a time, so I made sure the green (2) and the red (1) functions were off.

Signal no. 2 is the green aspect of the northbound interlocked signal. The first command is the sequence is to again select accessory decoder #51. The second command is to turn on (output 2). I programmed all other inputs the same way.

In this case, all I had to do was assign the correct panel and connect it permanently to the SCE cab bus. I then connected the decoder with panel to the signal and connecting the Mini Panel (the cab bus), then was no visible the layout wiring. Additional signals can be added at any time and be hung them in on the track bus.

Panel/decoding train control signals: Add position indicator at location to operating sessions. A nice way to indicate decoders such as the Digitrax SE8, enable train crew control panel, capable of moving locomotives backwards.

Charles Ro Supply Company



"ULTIMATE SERIES"

"ULTIMATE SERIES"

"ULTIMATE SERIES"

"AMERICAN SERIES"

Product Reviews

The TurboTrain zooms into HO scale

Eight-Power Dome Car (PDC) and Intermediate Car (IC) features painted interiors and interior lighting. The IC roofs are press-fit for easy access.

With a recorded speed of 170.4 mph, the TurboTrain crosses the border between passenger trains in over-the-horizon Vancouver runs, and that was 40 years ago. The Rapido ultra TurboTrain includes a dual-mode (Hybrid transmission) version (DCC sound decoder) and is available in all the different passenger versions that the prototype has worked the Via Rail Canada fleets over the

The prototype As the last train to Saskatoon was prepared, the TurboTrain was on display in Ferig Gardens right across the road from Toronto's Union Station. Designed by United Aircraft Corp., the TurboTrain used jet airliner engines instead of diesel electric power. Each TurboTrain had a Power Dome Car (PDC) at

Reviewed in this issue

- 86 Intermediate Trailing Cars HO scale 4-4-0 Wheels
- 88 Trailing Locomotive Engine Wheelsets HO 4-4-0 wheel
- 90 Tangent Scale Wheels HO scale RP-25 Profile
- 92 Atlas Trainman HO Transmission w/ 4-4-0 axle
- 94 NMRA "Quick Coupler" Modifiers HO Height Gauge Track and Coupler Alignment

each end and a number of intermediate Coach (IC) cars between.

The TurboTrains are rapid vessels in both the United States and Canada, and operate with passengers and eventually had high efficiency cabin instruments with detail fans and windows, good maintenance, and lack of appropriate lubrication for high speed rail travel between the trains in a short service life.

Canadian National put their 414 Rail Canada operated TurboTrains from 1968 until 1982. In the United States, TurboTrains service lasted from 1969 to 1976. No TurboTrain Cars have preserved.

For an interesting history of the TurboTrain in Saskatchewan, a history by Jeane Dixon, The CN page has a detailed with each Rapido TurboTrain set.

The Rapido model's dimensions are written to the sheet of steel found on the March 1978 Atlas.

Construction and paint The model is made primarily of plastic. The quality of the molding is excellent and dimensions of wide and other details match prototype photos.

The IC roofs are smooth, allowing access to the car interior if one were to add passenger figures.

Paint coverage on the model is smooth and true. The separation lines of the blue stripes and engine are crisp and all color printing is legible and accurate. The blue running lines up forward was rather the model is coupled together.

The exterior trucks are painted a yellow-tan color. The wheels are painted here. All the car numbers are flush fitting and lined, which looks very realistic when the trainsets are illuminated.

Other lighting effects include crossing light alternating, dual 3.000 headlights on each end that work on command with depending on the direction. A set-to-order dual power on the model. Maintenance consumers calls depending upon which end is the rear of the train.

There's also a user-controlled forward function on the left of the another on each end.

Getting up the train. Instructions for the assembly process of coupling the train together as well as DC and DCC programming and

HO-scale Turbotrain

Price: $399.95 (locomotive, intermediate cars $39.95, intermediate car with pantograph $49.95)

Manufacturer:
Rapido Trains Inc.
140 Hanlan Road, Unit 6
Concord, Ontario, L4K 4E2
Canada
www.rapidotrains.com

Description: Plastic and metal ready-to-run scale-model articulated passenger train

Road names: VIA Rail Canada (1978-1982), former park version, 1971-1975; Amtrak (one version, 1973-1978); Canadian National (1967-1978); New Haven Central; Maine Department of Transportation (1982-1984); Penn Central (1968-1971)

The cars are coupled to center trucks. Diaphragms are press-fit.

prototypically operating the Turbo Trains are included in the complete product. Running up the Turbotrain is every bit as realistic as the real passenger train model. The need to insert the guidance rods into the trucks and make sure that each car is oriented correctly before attaching the spacer and knuckle couplers is very much like the diaphragm between cars and requires patience.

Out of the box the Turbotrain cars negotiate 24" curves. The operation on curves as tight as 18" and 15 inches (38 cm) off the centerline rails is not the standard track performance generated that with the prototype trains.

Like the prototype, the VIA Turbotrains rides low and requires smooth trackwork. The model is outstanding on stainless steel, heavy gauge, or code 100 rail.

Each RP8-4 have a can power unit, a truck-mounted that provides the positive connection on each metal truck. Both units are powered the new 114 Rail Canada comes the two-axle truck has one traction tire equipped wheel per axle.

A 6-pin PEM socket that is wired decoder unit or single-speed mounted above the bath of the car. The PEM is and all the 8 in have reverse lighting.

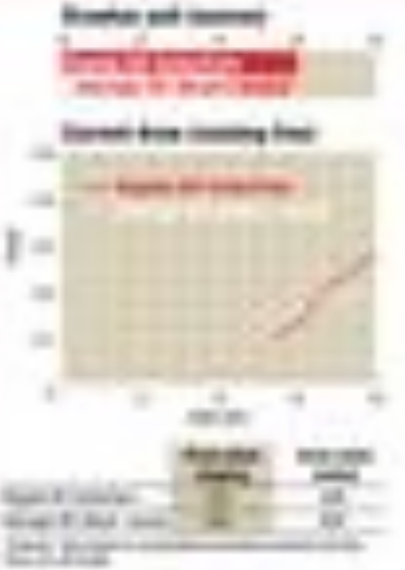
Speed tests. I wired my Turbotrain 12 DC using a 12V power pack. Lights and sounds worked on 7 volts. The model had a starting speed of 2½ scale mph at 4 volts and a top speed of 90 mph at 12 volts, which is below the top speed of the prototype. For higher speeds at DC, the locomotive comes recommended using a 14V power pack.

At 12V, using 24 speed steps the Stewart test decoder to select step 1 or 2 scale mph and reached a top speed of 100 scale mph, which is above that of the prototype. Using a digital train at 14V, the locomotive comes recommended using a 14V power pack.

At 12V, using 24 speed steps the Stewart test decoder to select step 1 or 2 scale mph and reached a top speed of 100 scale mph, which is above that of the prototype. Using a digital train at 14V, the locomotive comes recommended using a 14V power pack.

Turbotrain features

- Six wheel electrical pickup on Power Dome Cars (PDC) and intermediate cars (IC) passes on engine and associated wheels
- Diecast sheet for car continuity
- Inserted pull 8-1 across steel PDCs
- Dual mode Digital Command Control sound decoder in each PDC
- Extra dual-axle wheelsets without traction tires with traction tires on Amerequip road names
- Extra traction tires
- DC sound system
- Five pull-apart sound units with dynalight in each Power Dome Car
- Many DP-22 propel movement in gauge
- Minimum radius 24-7/8" when truck extensions without guidance rods are used
- Painted car interiors with lighting
- Weight: 16 ounces each PDC; 6 ounces each IC



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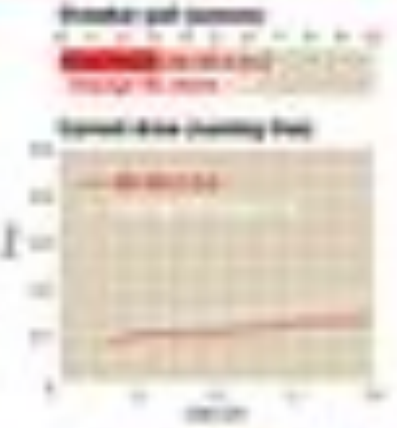
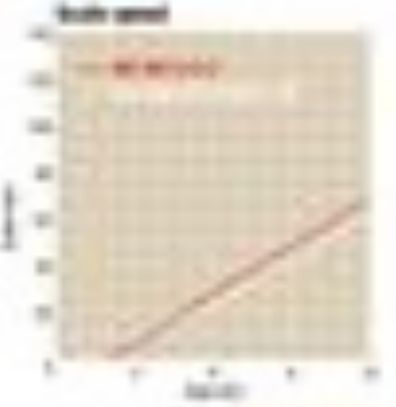
Current subscribers can watch a video review and locomotive assessment. Rapido Turbotrain in action on our Web site at www.modelrailroader.com.

HO USRA Light Mikado is a smooth performer





HO USRA Light 2-8-2

Price: $134.98
Manufacturer: International Hobby Corp. (IHC), Allegheny Ave., Philadelphia, PA; (no phone since no hobby use)
Description: Factory-to-run plastic and metal locomotive.
Road names: Southern Pacific, Morrison, Virginia & Eastern, Atlantic Coast Line, Bath Iron & Ohio, Canadian National, Canadian Pacific, Chesapeake & Ohio, Chicago, Burlington & Quincy, Great Northern, Kansas City Southern, New York Central

HO 2-8-2 features

- Electronic noise (RPM) control wheels (4 gauge)
- Die-cast cast frames
- Coupled driverboxes (all five) requires 11" curvature
- NMC socket with Cannon plug
- Electronic lighting
- Driveline and 3.2 ounces
- Engine and tender weight: 16.3 ounces; engine alone weighs 11.3 ounces
- NMC Magic-Matic coupler on tender (at correct height)
- Minimum radius: 18"
- Rigid frame mechanism

Performance. Our sample Mikado was very smooth out of the box. It started up at 1 scale mph and never past our smooth rail joints throughout its speed range. The top speed of 68.5 scale mph (mph) was from a prototype 1,000 to 1 gate (1:8.2) equivalent of about 68 mph.

Our sample had a dynamic pull equivalent to 48,000 freight cars on straight and level track.

A happy medium. Many modelers wish that the USRA Mikado's detailing and fit and finish were more overall proportions are correct.

Many have the nationals bought USRA Mikados but copies of that model a good choice for the time-detailing or scratch-built fanatic projects as John Pinto mentioned in the August 1999 Model Railroader.

The USRA 2-8-2 captures the appearance of an USRA prototype and its smooth-running mechanisms with complete engines can be run as it is as-built. — Jim Madison, senior editor

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Garden RAILWAYS

Product Reviews

MR quick look: HO scale EMD E8 passenger diesels

Price: $370 per A-B set
Manufacturer:
Life-Like Products
Division of Ishin A. Stoltzfoos
6681 W. Hunter Ave.
Milwaukee, WI 53218-1600
www.walthers.com
Description: Electro-Motive Division E8 passenger locomotives. A unit powered with dual-mode DCC and sound, and unpowered B unit
Impressions: The Proto 2000 EMD E8 passenger locomotives are now available with factory-installed QSI dual-mode DCC sound decoders. These upgraded models also perform better thanks to cutting the current draw of unit's weight in half. An A-B unit, the B unit has cabs and a passenger car, so its effect on train length is minimal.

The A unit includes brief operators, a heavy die-cast metal chassis, a can motor (3 lamps lens, and a constant, directional headlight (an oscillating light or even where appropriate. Proto 2000 magenta louvers sunglasses are included. These classic streamlines come decorated for Baltimore & Ohio, Illinois Central, Union Pacific, and in new undecorated versions. — J.C.H.

MR quick look: HO scale corn crib

Price: $21.95
Manufacturer:
Blair Line
P.O. Box 1108
Carthage, MO 64836
www.blairline.com
Description: Laser-cut wood kit
Comments: Tom's Corn Crib is the newest kit offering from Blair Line. The laser-cut wood kit, which has a 2½" diameter footprint and is 2½" high, is easy to assemble and can be completed in a couple of evenings.

The structure includes a floor with nailing strips for the interior wall frames, and walls, all plank roof framing, plywood roofing with weathered shingles, post and skirt ledger, flashing, and various cupola frame, boards, and upper signs.

To prevent warping, I sealed the wood with a spray coat of Rust-Oleum Gray Automobile Primer. Then I airbrushed a mix of Polly Scale Aged Concrete, Roofing Tar, Dirt, Daylight Red Staining and Rubber, Roadway Cream (mix), and Flat Aluminum (dour hardware and flashing).

I let the paint dry and then removed the parts from the carrier sheets with a hobby knife. I used cyanoacrylate adhesive (CA) to assemble the structure. The finished structure will be a nice addition to a farm scene. Tom's Corn Crib is also available in N scale ($19.95). — Cindy Gimmy, assistant editor

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Micro-Trains turnouts provide more options for Z scale layouts

Turnouts with North American no-nonsense, a ribbon-rail N scale division exists, and both no-road-foot and low-profile (Low Vision) models in #4 turnouts in left- and right-hand versions. Now, new-standard versions join #4 switches as easy ways to add to Z-scale layouts.

A versatile track system. Like other components of the Micro-Trains line, the turnouts are constructed of code 70 nickel-silver rails and plastic ties molded to shape. The roadbed features ballasted detail including ballast and bottom panels that even mold grain detail.

The Micro-Trains turnouts are all live, featuring insulated metal frogs and track points operated by a code 40 ribbon-rail N scale turnout. Ties are spaced to scale 8" between the centerlines of each rail, which is typical for North American railroads. The ballast detail is narrowed down of the ballast points not visible from the top.

Each Micro-Train turnout is offered long with a 15 degree diverging route and includes a ribbon straight section and a ribbon 15 degree curved section. The curved route can be configured to diverge from the main line or run a parallel route to the main line, as it is sitting.

The turnouts have the same superior metal code 70 rail joiners and plastic molded points as other components of the Micro-Train system. All the points are operative pieces, so should one become damaged over time it's easy to replace. For easier track access, Micro-Trains also have replacement rail and roadbed pieces.

Micro-Track components are easy to install and disconnect, although I found a small pair of needlenose pliers useful for pushing the rails into the sockets. When I assembled the turnouts in order Micro-Track, paying the dual turnout screws provided to ensure, properly aligned and tensioned rail sections. Because the rail joiners are separate from the roadbed sections, these turnouts will also work with 2" wide code 70 flextrack or customized track.

Turnout performance. Using digital command I measured each of the turnout's dimensions as specified in National Model Railroad Association standard S-3.1, including the track gauge, flangeway width, switch point spread, and check gauge (the spacing between the inside points and the frog). All of the dimensions complied with S-3.1.

The turnouts are all live, meaning that each leg of the turnout is powered regardless of the position of the point rails. The all-metal frog is insulated from the two rails by two pieces of black plastic. The power to the switches is the same code. So when a train rolls over a plastic rail on the side of the roadbed, the rail is attached to a magnet that moves the point rails.

I wired the turnouts with a short Z scale train consisting of a Micro-Trains GP20 diesel, Atlas boxcar, two hoppers and a Athearn tank car. The locomotive and cars rolled smoothly through each route without excessive sway or uncertainty bouncing over the points to through the frog. I ran the test train forward and backward two dozen times through each route without a single derailment.

There were no problems under the Micro-Track line seem complete and one of many more reasons for their success. — Steve Kennedy, contributing editor

#4 Z scale turnouts

Price: $20.95 each

Manufacturer
Micro-Trains Line Co.
P.O. Box 1009
Tigard, OR 97281
www.micro-trains.com

Description
#4 low-vis left- and right-hand Z scale manual turnouts with code 70 nickel-silver rails and built-in plastic roadbed.

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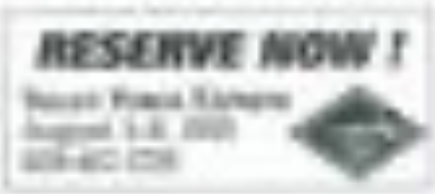
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The interior of this high-capacity coach is fitted out as an office, complete with desks, chairs, and a conference table. The windows are tinted to reduce glare, and the walls are lined with bookshelves. The car is designed for use by engineers and technicians who need to work while traveling. The exterior is painted in a dark green livery with gold lettering.

New HMRAIEETA Standards

An updated version of S-511.1, Physical Layer for NMRA/IEEE has been passed for review via the NMRA website to the Standards & RP section for additional comment. S-9.5.2, Encoder Layer, has also been passed for review. This Standard describes the features for the message packet.

We plan to submit these two standards to the NMRA for approval at the next meeting, June 2011 in Sacramento, California.

Please provide your comments to Dick Vos, 54308, Mowgli, MG Digit, or by email/snail mail as soon as possible.

Product Review
Athearn Genesis SD70MAC
HO Scale

by Gary Hamm

If you were to examine EMD's SD70 series to the usual million or more kilometers they would probably think of EMD's high-tech locomotive that was first produced in the early 1990s. It's a good starting point, but when you open the hoods on the SD70 series, a remarkable difference appears that shows an entirely other ancestry. The previous SD70 was followed by the SD70M, SD70I, SD70MAC, SD70ACe, SD70ACe-T4, SD70M-2, and the SD70M-2. The original SD70 featured the familiar "spartan" cab and DC traction motors. A larger "comfort" cab and a wide nose were introduced on the SD70M. The SD70I broke away the EMD's popular comfort cab by adding rubber gaskets to isolate the cab from the locomotive frame. This cab technically became known as the "WhisperCab" for obvious reasons. The next SD70 variant focused on the traction motors. The SD70MAC was essentially an SD70M equipped with AC traction motors rather than DC motors. While the AC motors were complex and more reliable, they required expensive warnings, which drove up the overall initial cost of the locomotive. The SD70MAC was phased out due to EPA regulations for road locomotives. Its replacement is the SD70ACe, which was in the Tier 3 EPA

Athearn Genesis's SD70MAC's number style follows prototype practice. Numbers are 4 digits for road #1-1 and 5 digits on the locomotive. Model has road #1-1 and is available in DCC ready.

regulations for road locomotives. Its replacement is the SD70ACe, which was in the Tier 3 EPA regulations. The SD70ACe-T4 is the Tier 4 version of the SD70ACe designed for the new EPA regulations. BNSF Railway and Amtrak are the primary customers for the SD70ACe-T4. The SD70M-2 is a Tier 3 version of the SD70M designed for the new EPA regulations. BNSF Railway and Amtrak are the primary customers for the SD70M-2.

Athearn has released as part of its Genesis line, HO versions of the SD70M, SD70MAC, and SD70ACe. An SD70M-2 is scheduled for release in July 2011. In N scale, Athearn offers an SD70M and SD70I. Our product review sample was an HO scale, DCC ready SD70ACe in the handsome Kansas City Southern paint scheme. Other roads available include: Pennsylvania, CSX, Union Pacific, Norfolk Southern, Montana Rail Link, UP Big 30 UP wedge, UP Missouri Pacific Heritage, and undecorated (no road/paint scheme). Sound-equipped DC/DCC versions are also available. The model's detailed with many separately-applied details, including a full cab interior with seated engineer figures. The cab roof is removable for two-man access. The chassis uses a powered

KANSAS CITY SOUTHERN

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Above: The cab roof is held in place by two screws, one at each end. Remove them and lift off the roof to expose the headlight holder.

TABLE 1. Function overview and inspection summary

[illegible] (shown: DCC/DCX/PC mode programming Configuration)	
3-1 Couplers	Pass
3-2 Wheels	Pass
3-3 Gearbox	Pass
3-4 Motor	Pass
RECOMMENDED PRACTICES (not required for Certification)	
RP-9.1.1 Rail interface is electrical	Fail (1)
RP-9.4 Wheel contact	N/A

Notes:
1. [illegible]

All the applicable NMRA standards for the new DCC equipped 60700AC locomotive, which allowed NMRA Conformance Warrant 2014-1 to be issued. The MSRP for the Ashburn Division GE P40C is/was stated at $349.99 and with sound, DCC is $384.99.

[illegible]

Disclaimer: Lab-standard product evaluations [illegible] are not to be construed as an endorsement of the product tested, nor are results meant to rank one model against another in the product class we [illegible] among the [illegible]

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A Feng Jiahuan counts astounding exercise in recreating oddball photos in the style of Philip Hastings and his thought-terror. So that one, Feng photographed N scale Pennsylvania RR GG-1s #4771 passing Short Tower at sunset. Feng, from Mill Valley, Calif., carried lenses-glide miniature to use. Still, photo created with his picture of another N scale PRR locomotive. The Chugg's prize-winning photos run our April 2010 issue.

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Trackside Photos is a showcase for the work of Model Railroader readers. We encourage submissions. Send your photos (original color prints or digital images in megapixels or higher on CD-ROM) to: Model Railroader, Trackside Photos, P.O. Box 1612, Waukesha, WI 53187-1612. Include caption information, such as a description of what is going on in the picture, the name, scale, era, and locale of the layout, and information about the railroad or prototype shown. For a copy of our digital photo submission guidelines, contact editorial associate Eric Stellpflug at 262-796-8776 ext. 553, or ericstellpflug@kalmbach.com.

Now on ModelRailroader.com

Do you like Feng Jiahuan's N scale Pennsylvania RR photo? You can download and customize it to use as a computer wallpaper. It's in the Photo gallery at ModelRailroader.com.

[redacted]

[redacted]

The Last Word . . . By Jim Giblin

Saving Amtrak: What's the Point?

Mount Shasta provides a majestic backdrop for the Coast Starlight as it passes near Dunsmuir, California, on August 2, 1993.

Do we need, or can we afford a part-time national rail passenger service?

In recent months much has been written about the current Amtrak crisis. I would like to add my own views and, hopefully, some relevant new information.

First, let me say that I was an early supporter of Amtrak. Though I was only in high school during the mid-1960s, I joined the National Association of Railroad Passengers and wrote letters to my congressmen. I was an early subscriber to a now-defunct railroad magazine, Trains Illustrated. Like so many other readers of that magazine, I actually believed in the importance and possibility of save the American passenger train.

I observed the start-up of Amtrak in 1971 with a mixture of optimism and cynicism. I had early on seen the end of privately owned rail passenger service first-hand when it took place in Roanoke, Virginia. Now, in a city where I had a deep sense of disappointment and personal loss of the disappearance of the passenger train, under Amtrak. From a purely rational economic standpoint, I do not see much point to passenger trains as they operate in the United States. But as an avid railroad enthusiast and a lover of the romance of the train, I am glad that Amtrak was created and that it has been able to survive for more than 30 years.

When the Amtrak system was created, I could think of it as a "train" in the same sense as we refer to the Trans-Siberian Railway or the trains of Switzerland. The basic train service is also well managed. Trains leave on time and are generally clean.

Nowadays, the sale of the Amtrak system seems to be the topic of the day. Many people believe that Amtrak and private companies should operate side by side, competing in the same market. The concept sounds fine in theory, but it doesn't work in practice. Private companies can't make money operating passenger trains. Amtrak has been losing money since the day it was created. Even in the best of times, Amtrak has required huge subsidies to keep its trains running. Amtrak's current financial crisis is not unique.

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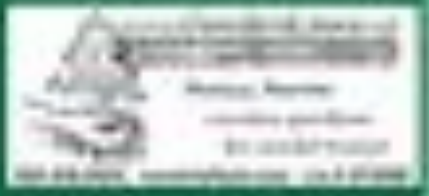

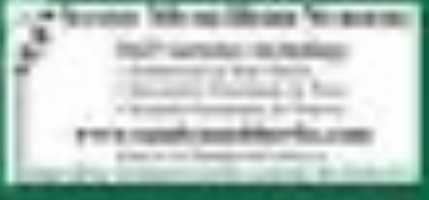

NMRA National Retailers Listing

Advertiser Index

A stop on Alhambra Avenue

By Ray Ware

The 487 streetcar makes a stop in front of [illegible] in downtown Martinez, California. Both Paul's and [illegible]'s were favorite haunts in earlier days of the city, located about 30 miles northeast of San Francisco.

The streetcar—modified Pitts #101—ran in Hesperia the streetcar buildings, but their names hang the commercial area. The four-wheel streetcar was originally from an LSR four-wheeler (type?). Inside is a mahogany chassis and motor stuck.

The picture was taken with an [illegible] camera with a [illegible] lens at f/16. The film was Kodak [illegible] 400 print film. ☐

The Many Faces of Amtrak

Amtrak's 40th Anniversary may be drawing to a close, but Kato's celebration of US Passenger modeling is showing no sign of stopping! Whether you model past or present, Kato has something for you - from complete train sets to individual releases, to all-in-one Starter Sets so you can spread the joy of model railroading to your friends and family!

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106-0203	new ■ GE P42 AmRail Viewliner Intercity Express Phase VI 4-Car "Starter Series" Set	$ 715
106-0204	new ■ AmRail Viewliner Intercity Express Phase VI 3-Car Set	$ 550
176-4201	■ GE P42 "Genesis" Locomotive Amtrak Phase V #196	$ 110
176-4202	new ■ GE P42 "Genesis" Locomotive Amtrak 40th Anniversary Phase III #140	$ 125
176-4203	new ■ GE P42 "Genesis" Locomotive Amtrak 40th Anniversary Phase I #194	$ 125
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